

SONY®

TBC SIGNAL PROCESSOR

BKH-3010

INSTALLATION AND MAINTENANCE MANUAL

1st Edition (Revised 1)

Serial No. 10001 and Higher

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第 1 章 概 要

1-1. 概要

BKH-3010 TBC シグナルプロセッサは、NTSC 信号用ソニー 1 インチ・ビデオテープレコーダー BVH-3000/3100 のビルトイン TBC を構成する基板ユニットであり、デジタル Y・C シグナルプロセッサとアナログビデオシグナルプロセッサの機能を持っています。

BKH-3010 を BVH-3000/3100 に装着することにより、広範囲なタイムベースコレクションが行なわれ、ノーマル再生および -1 ～ +3 倍速のダイナミックトラッキング再生において高品質なカラー画像が得られます。スロー再生の画像は Y・ADD 処理によって自然なものとなります。

デジタル Y・C シグナルプロセッサ部では、Y、C 共に 1H 前部分置換によるドロップアウト補償も行なっています。また、メニュー操作により、デジタル Y/C 分離したクロミナンス成分をデジタル Y・C シグナルプロセッサ部で OFF することもできます。

なお、ビデオシグナルプロセッサの調整は、リモートコントロールユニット BK-2006 (別売) またはモニターコントロール SUA-911 (別売) によって、リモートコントロールできます。

BKH-3010 の取扱い操作については、“BVH-3000/3100 OPERATION MANUAL” を参照してください。

1-2. 仕様

消費電力, 他*1

消費電力	16W
外形寸法 (幅/高さ/奥行き)	400×25×332mm
重量	1.25kg
動作温度	5℃～40℃

BKH-3010 を BVH-3000/3100 に装着すると、BVH-3000/3100 のビルトイン TBC として次のような仕様となります。

ビデオ系

帯域幅	フラット～4.2MHz ±0.3dB
S/N	55dB 以上
DG	2% 以下
DP	2° 以下
K ファクター	1% 以下
ウィンドウ	15Hp-p
残留エラー カラー	±2.5ns 以下
白黒	±15ns 以下
Y/C ディレイ	20ns 以下

プロセッサ調整範囲

OUTPUT VIDEO LEVEL*2	±3dB
CHROMA LEVEL*2	±3dB
SET UP LEVEL*2	±15IRE
HUE	±15° 以上
SYSTEM SC PHASE	360° 以上
SYSTEM SYNC PHASE	-1～+3 μs

仕様および外観は、改良のため予告なく変更することがあります。

*1 : BKH-3010 (PR-91 基板) のみの仕様です。

*2 : PR-91 基板で行うことができる調整です。

第2章

設置・サービスインフォメーション

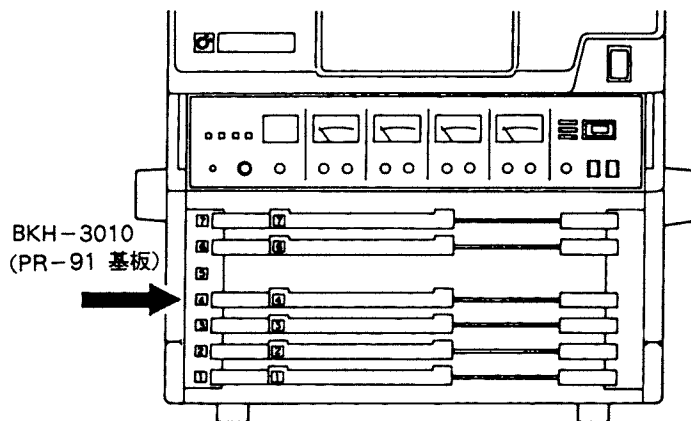
2-1. 設置

2-1-1. 基板の挿入

基板を挿入する時は、次のことを必ず守ってください。

- ・ 電源をOFFにする。
- ・ 下図に示してある所定の位置に基板を入れる。
この時、基板番号（基板左側に表示）が基板位置指定番号（VTR本体左側に表示）に一致していることを確かめる。
- ・ 電源をONにする前に、もう一度、基板の位置を確かめる。
基板の位置を誤ったまま電源をONにすると、回路を破損することがあります。

必要な時以外は、基板の抜き差しはしないでください。

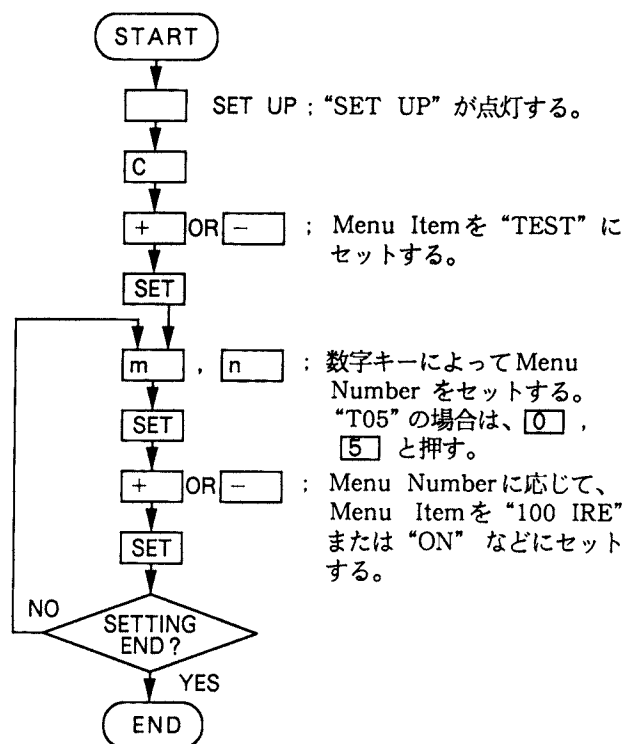


2-1-2. 初期設定

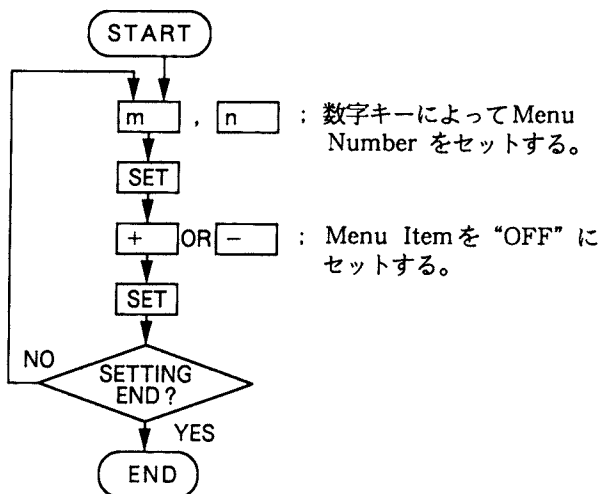
BKH-3010をVTRにセットする時には、次頁からの〔1〕～〔4〕の調整を必ずしてください。

調整の際のメニューの設定は、次のようなキー操作によって行えます。

“調整前のメニューの設定” をする場合



“調整後のメニューの設定” をする場合



〔1〕. VIDEO, SYNC, BURST レベル調整

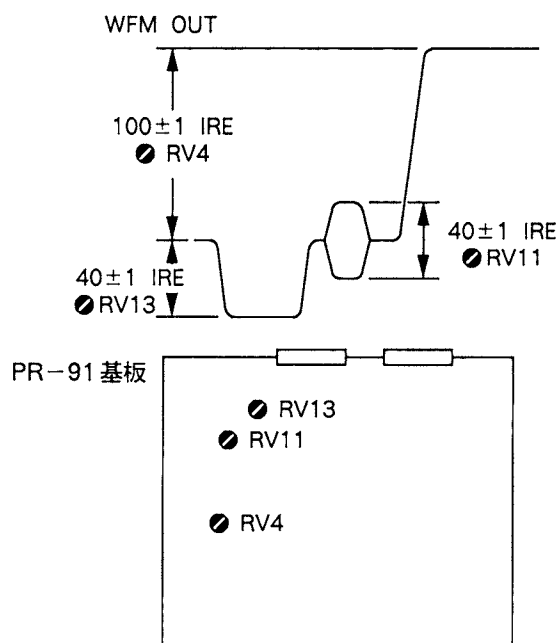
測定器： 波形モニター
 VTRのモード： STOP (Auto E-E)
 入力信号 (VIDEO IN)：
 COLOR BAR 信号

調整 RP-91 基板

Step 1. 調整前のメニューの設定

T05 PR TEST 1 : 100 IRE
 T06 PR TEST 2 : ON

Step 2. VIDEO, SYNC, BURST レベル調整



Step 3. 調整後のメニューの設定

T05 PR TEST 1 : OFF
 T06 PR TEST 2 : OFF

〔2〕. HUE プリセット, SC-H 位相調整

測定器： ベクトルスコープ, SC-H メーター
 VTRのモード： STOP (Auto E-E)
 入力信号 (VIDEO IN)：
 COLOR BAR 信号

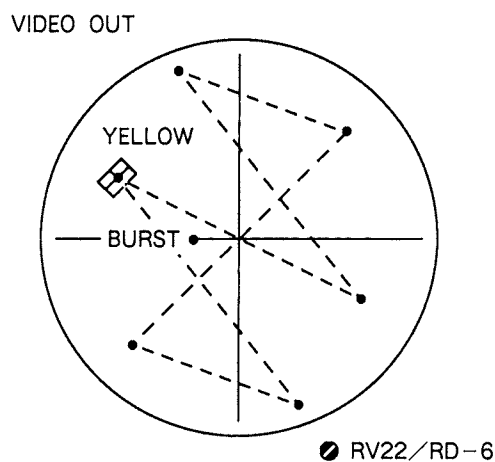
調整 RD-6 基板

Step 1. 調整前のメニューの設定

T07 RD TEST 1 : ON

Step 2. HUE プリセット

VIDEO OUT/BVH-3000, 3100のBURST-YELLOW
 位相が下図のようになるようにRV22を調整してくださ
 い。

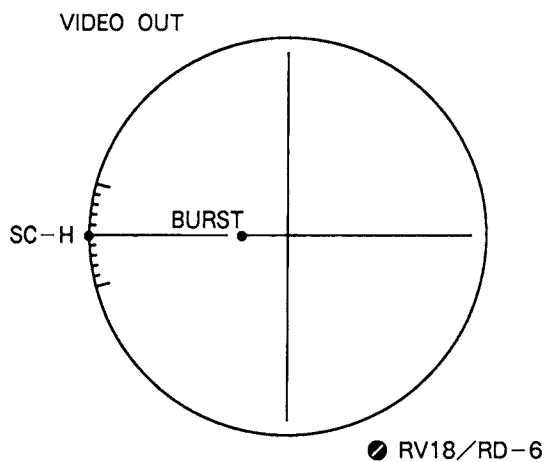


*1 : 基板 No.1-621-104-11

*2 : 基板 No.1-621-104-12

Step 3. SC-H位相調整

SC-Hメーターまたはベクトル스코プのSC-Hモード (TEKTRONIX社1750相当品) を使って、VIDEO OUT / BVH-3000, 3100のSC-H位相が下図のようになるようにRV18を調整してください。



Step 4. 調整後のメニューの設定

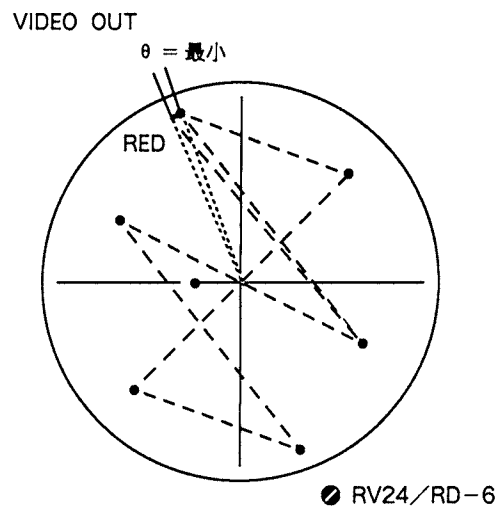
T07 RD TEST 1: OFF

[3]. ペロシティエラーオフセット調整

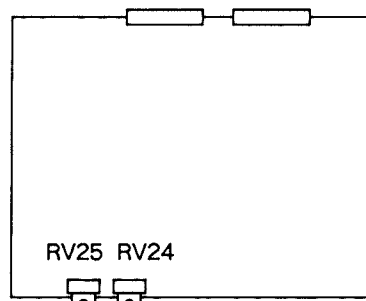
測定器: ベクトル스코プ
VTRのモード: STOP (Auto E-E)
入力信号 (VIDEO IN): HALF RED COLOR BAR信号

調整 RD-6 基板

VIDEO OUT / BVH-3000, 3100のREDスポットの θ が最小になるようにRV24をゆっくり調整してください。



RD-6 基板



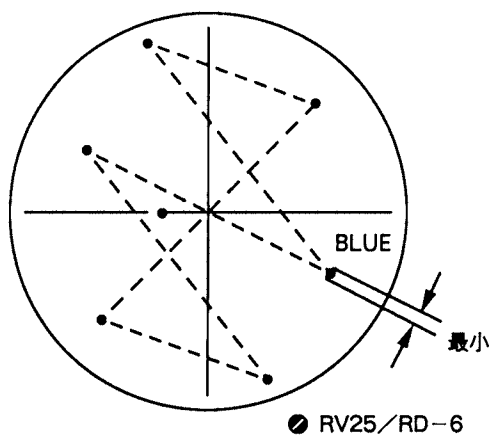
[4]. ペロシティエラーゲイン調整

測定器： ベクトルスコープ
VTRのモード： PLAY (COLOR BAR 信号)
入力信号 (VIDEO IN)：
 カラービデオ信号

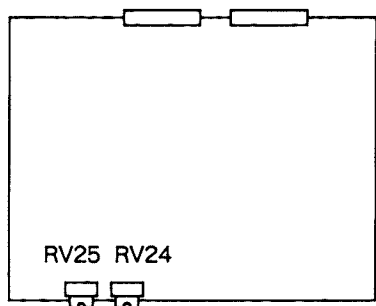
調整 RD-6 基板

VIDEO OUT/BVH-3000, 3100のBLUEスポットが
最小になるように、RV25をゆっくり調整してください。

VIDEO OUT



RD-6 基板



SECTION 1

OUTLINE

1-1. OUTLINE

The BKH-3010 TBC signal processor is a basic unit for configuring a built-in TBC in the SONY BVH-3000/3100 NTSC 1-inch video tape recorder. It functions as a digital Y/C signal processor and also as an analog video signal processor.

By installing the BKH-3010 in the BVH-3000/3100, a wide range of time base correction can be performed, enabling a high quality picture to be obtained in normal playback and in dynamic tracking playback of -1 to $+3$ times normal speed. As a result of Y-ADD processing, the picture quality for slow playback is natural.

In the digital Y/C signal processor, dropout compensation for both Y and C is performed. The dropout section can be replaced by a 1H prior signal. Also, by performing a menu operation, it is possible to turn OFF the Y/C separated chrominance component using the digital Y/C signal processor. The video signal processor can be remotely adjusted using the BK-2006 remote control unit (optional) or the SUA-911 monitor consol unit (optional).

As concerns a BKH-3010 operation procedure, refer to a BVH-3000/3100 operation manual.

1-2. SPECIFICATIONS

Power consumption, others*¹

Power consumption	16W
Dimension (W/H/D)	400×25×332mm
Weight	1.25kg
Operating temperature	5°C to 40°C (41°F to 104°F)

By installing the BKH-3010 in the BVH-3000/3100, it will have the following specifications as a built-in TBC for the BVH-3000/3100.

Video signal system

Bandwidth	Flat to 4.2MHz±0.3dB
S/N ratio	55dB
DG	Less than 2%
DP	Less than 2°
K-factor	Less than 1%
Window	15H (p-p)
Residual error	Color : within ±2.5ns Monochrome : within ±15ns
Y/C delay	Within 20ns

Processor adjustment range

OUTPUT VIDEO LEVEL* ²	±3dB
CHROMA LEVEL* ²	±3dB
SETUP LEVEL* ²	±15 IRE
HUE	±15°
SYSTEM SC PHASE	More than 360°
SYSTE SYNC PHASE	-1 to +3 μs

Design and specifications subject to change without notice.

*1 : Specifications for the BKH-3010 (PR-91 board) alone

*2 : Adjustment which can be performed on the PR-91 board

SECTION 2

INSTALLATION AND SERVICE INFORMATION

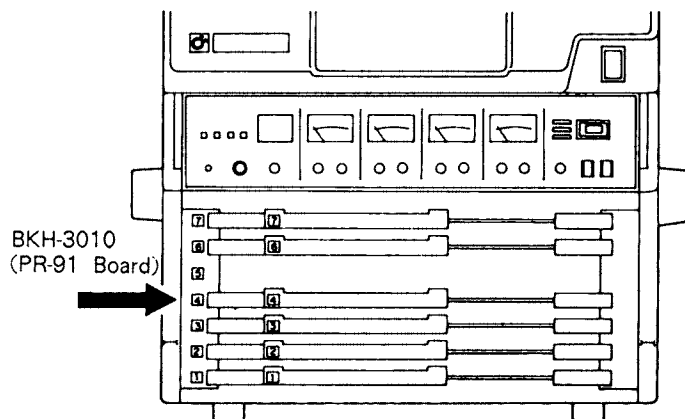
2-1. INSTALLATION

2-1-1. Insertion of Board

Be sure to observe the following points when inserting the board.

- *Switch the power OFF.
- *Insert the board in the designated position shown in the figure below.
Ensure that the board number (indicated on left of board) agrees with the board position designation number (indicated on left of VTR).
- *Before switching the power ON, check the position of the board once again.
If the power is switched ON with board incorrectly inserted, the circuit may be damaged.

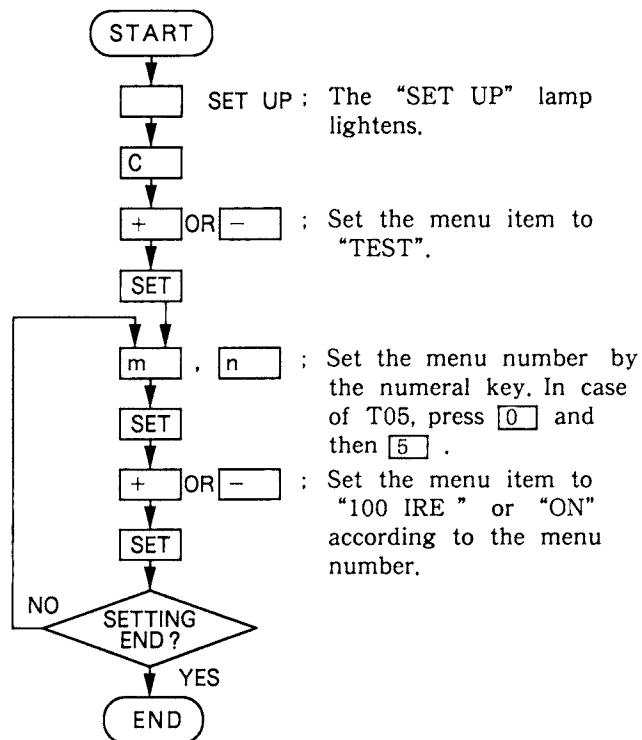
Do not pull out or insert the board other than necessary.



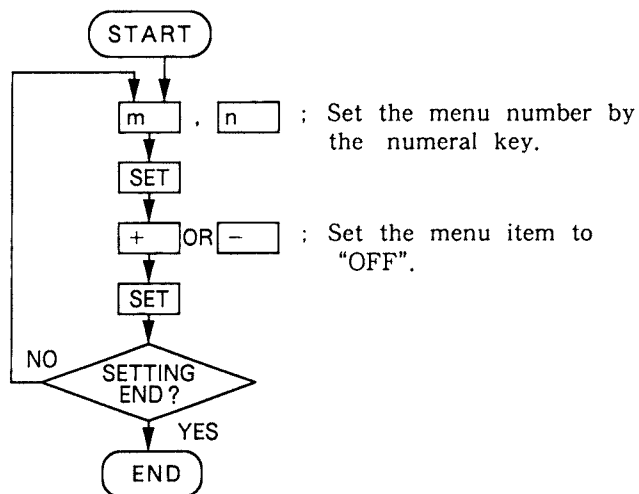
2-1-2. Initial Setting

When installing the BKH-3010 in the VTR, be sure to perform the following adjustment [1] to [4]. The menu setting for the adjustment can be done by the key operation as follows.

For "The menu setting before the adjustment"



For "The menu setting after the adjustment"



[1] VIDEO, SYNC and BURST Levels Adjustment

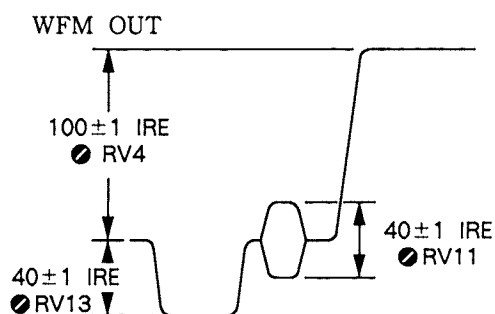
Equipment ; Vectorscope
 Mode of VTR ; STOP (Auto E-E)
 Input Signal (VIDEO IN) ;
 Color Bar Signal

Adjustment PR-91 board

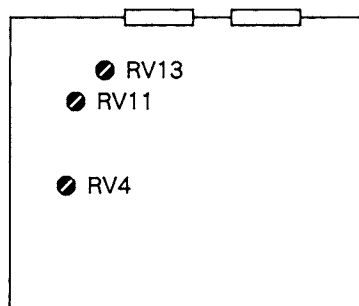
Step 1. The menu setting before the adjustment

T05 PR TEST 1 : 100 IRE
 T06 PR TEST 2 : ON

Step 2. VIDEO, SYNC and BURST levels adjustment



PR-91 Board



Step 3. The menu setting after the adjustment

T05 PR TEST 1 : OFF
 T06 PR TEST 2 : OFF

[2] HUE Preset, SC-H Phase Adjustment

Equipment ; Vectorscope, SC-H meter
 Mode of VTR ; STOP (Auto E-E)
 Input Signal (VIDEO IN) ;
 Color Bar Signal

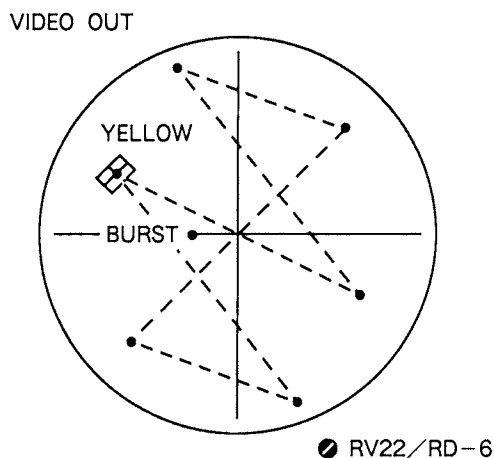
Adjustment RD-6 board

Step 1. The menu setting before the adjustment

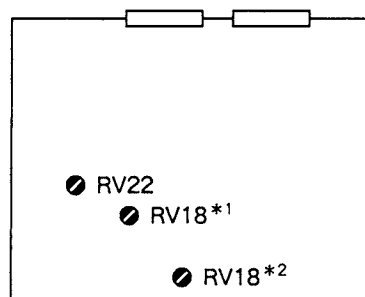
T07 RD TEST 1 : ON

Step 2. HUE presetting

Adjust RV22 so that the phase of the BURST-YELLOW of VIDEO OUT/BVH-3000, 3100 is as shown in the figure below.



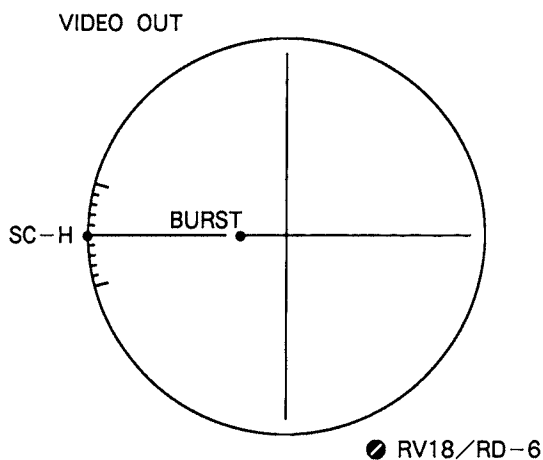
RD-6 Board



*1 : Board No.1-621-104-11
 *2 : Board No.1-621-104-12

Step 3. SC-H phase adjustment

Using the SC-H meter or the SC-H mode of the vectorscope (TEKTRONIX Type 1750 or equivalent), adjust RV18 so that the SC-H phase of VIDEO OUT /BVH-3000, 3100 is as shown in the figure below.



Step 4. The menu setting after the adjustment

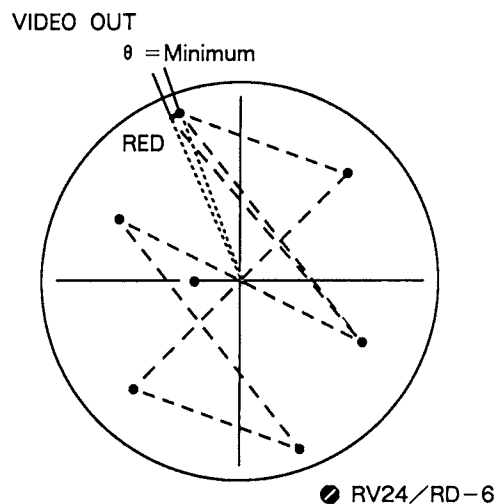
T07 RD TEST 1 : OFF

[3] Velocity Error Offset Adjustment

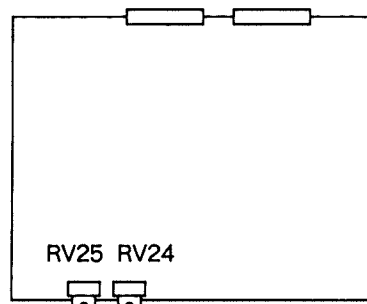
Equipment ; Vectorscope
Mode of VTR ; STOP (Auto E-E)
Input Signal (VIDEO IN) ;
Half Red Color Bar Signal

Adjustment RD-6 board

Slowly adjust RV24 so that the θ of the red spot on the vectorscope becomes minimum.



RD-6 Board



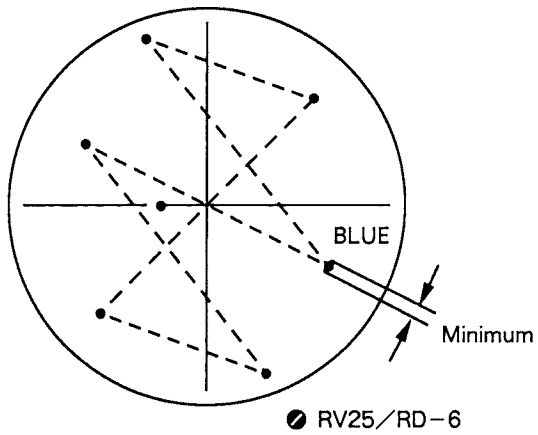
[4] Velocity Error Gain Adjustment

Equipment ; Vectorscope
Mode of VTR ; PLAY (Color Bar Signal)
Input Signal (VIDEO IN) ;
 Color Video Signal

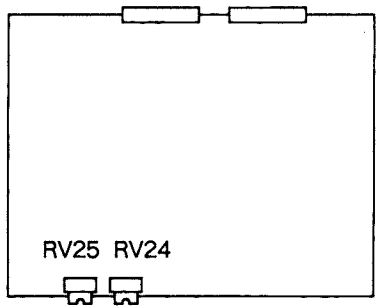
Adjustment RD-6 board

Slowly adjust RV25 so that the blue spot on the vectorscope becomes minimum.

VIDEO OUT

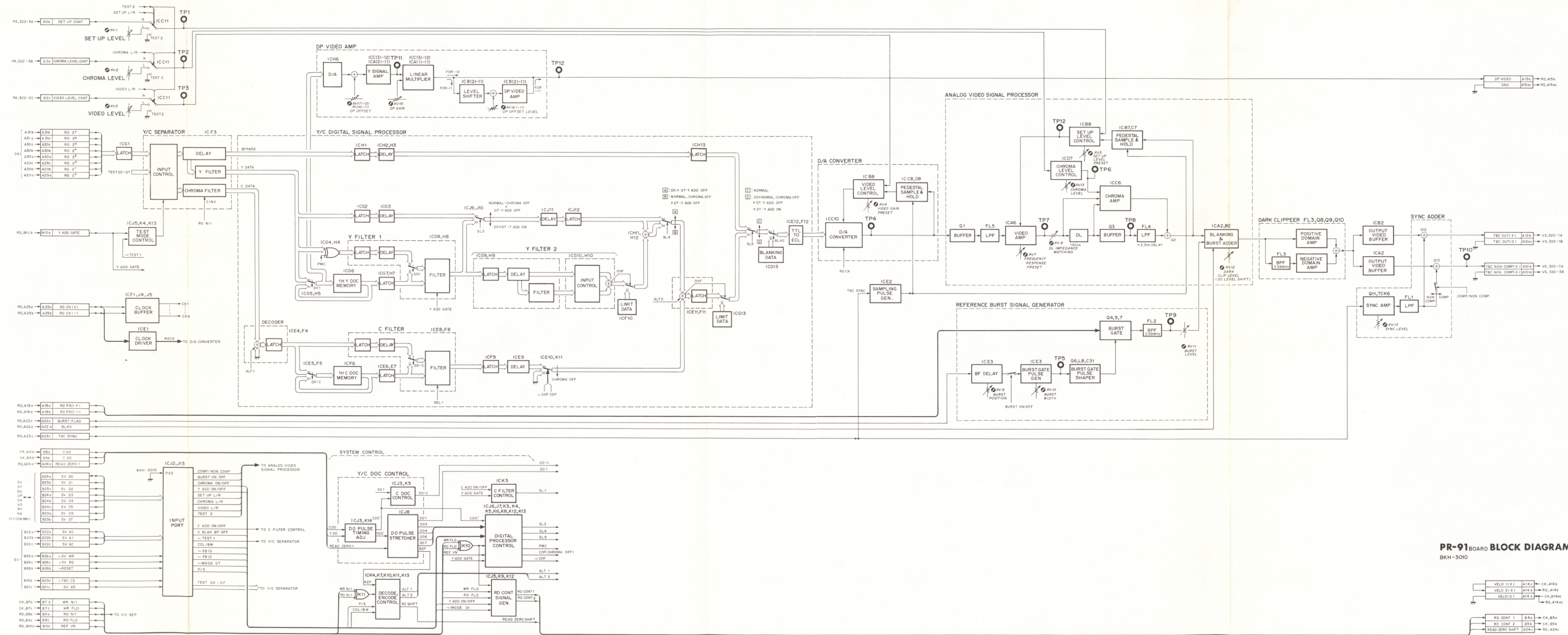


RD-6 Board

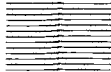


SECTION A
BLOCK DIAGRAM

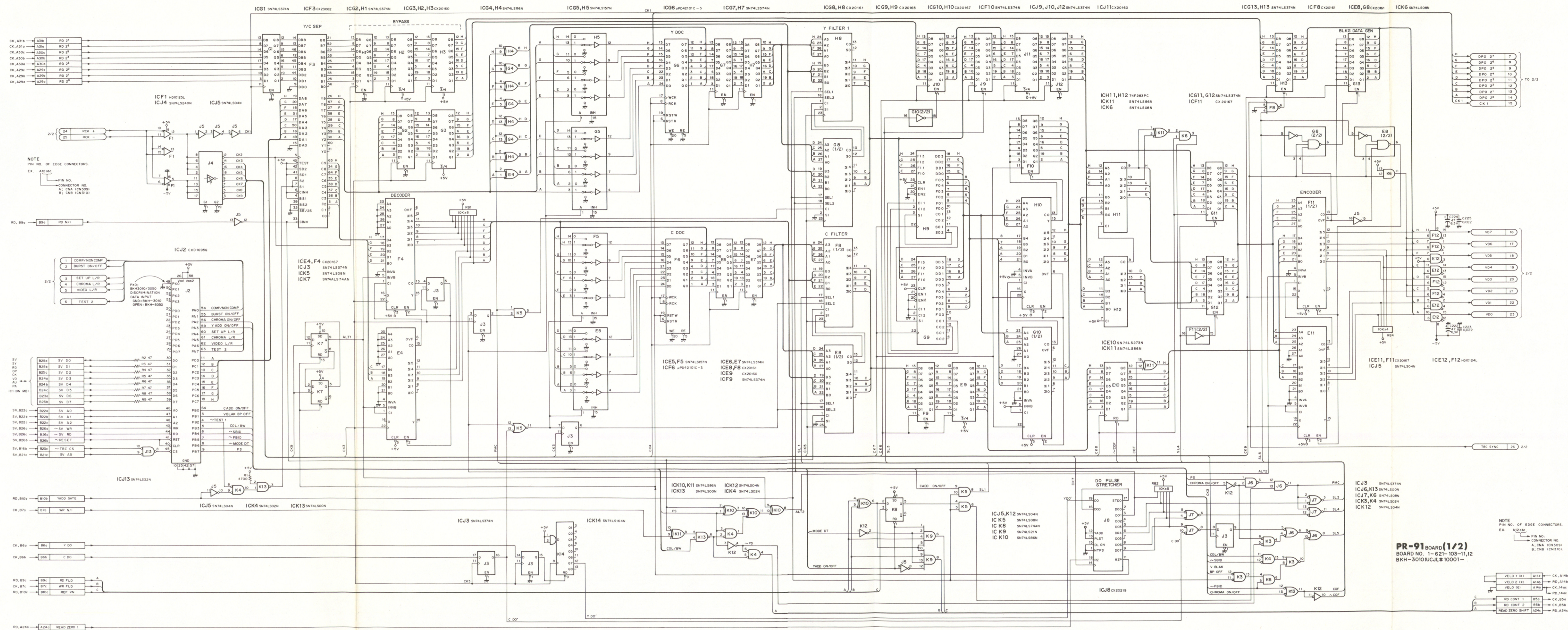
PR-91 BLOCK DIAGRAM



PR-91 BOARD BLOCK DIAGRAM
BKH-3010

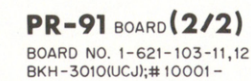


SECTION B
SCHEMATIC DIAGRAM & BOARD LAYOUT



D/A Converter

Analog Video Signal Processor



SECTION C

SEMICONDUCTOR PIN ASSIGNMENTS

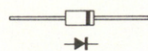
この章の図の中には互換性のないダイオード，トランジスタ，ICが併記されていることがあります。部品を交換するときには必ず部品表を参照してください。

等価回路はICメーカーのData Bookに従いました。

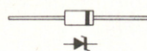
The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list.

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE	TYPE	PAGE
1SS119.....C-2		HD74LS74AP.....C-8	
1SS120.....C-2		HD74LS86P.....C-9	
1SS133.....C-2		H11-0201-5.....C-6	
1SS148.....C-2		HZS4.7N.....C-2	
2SA1048.....C-2		HZS7.5N.....C-2	
2SA1115.....C-2		L29C520PC.....C-7	
2SA1115P.....C-2		MB40778P.....C-7	
2SA1175.....C-2		MB7112L.....C-8	
2SA1206.....C-2		MB7114H.....C-8	
2SA1583.....C-2		MB7122E.....C-8	
2SC2458.....C-2		MB7134E.....C-8	
2SC2603G.....C-2		MC10116L.....C-8	
2SC2901.....C-2		MC10124L.....C-6	
2SC634SP.....C-2		MC10125L.....C-6	
74F283PC.....C-10		MC1595L.....C-8	
74F374PC.....C-10		RD4.7ESB.....C-2	
BX365A.....C-3		RD7.5ESB.....C-2	
CD4053BE.....C-3		SN74ALS74AN.....C-8	
CX20051A.....C-3		SN74LS00N.....C-9	
CX20158.....C-3		SN74LS02N.....C-9	
CX20160.....C-3		SN74LS04N.....C-9	
CX20161.....C-3		SN74LS08N.....C-9	
CX20165.....C-4		SN74LS157N.....C-9	
CX20167.....C-4		SN74LS164N.....C-9	
CX20219.....C-4		SN74LS21N.....C-9	
CX22029.....C-4		SN74LS221N.....C-10	
CX23082.....C-5		SN74LS240N.....C-10	
CXD1095Q.....C-6		SN74LS244N.....C-10	
CY7C235-40PC.....C-7		SN74LS273N.....C-10	
DTA114ES.....C-2		SN74LS283N.....C-10	
HD10116.....C-8		SN74LS32N.....C-9	
HD10124.....C-6		SN74LS374N.....C-10	
HD10125.....C-6		SN74LS74AN.....C-8	
HD74LS00P.....C-9		SN74LS86N.....C-9	
HD74LS02P.....C-9		TL082CP.....C-11	
HD74LS04P.....C-9		TL084CN.....C-11	
HD74LS08P.....C-9		TL607CP.....C-11	
HD74LS157P.....C-9		μPC4082C.....C-11	
HD74LS164P.....C-9		μPC4557C.....C-11	
HD74LS21P.....C-9		μPD4053BC.....C-3	
HD74LS221P.....C-10		μPD41101C-2.....C-11	
HD74LS240P.....C-10		μPD41101C-3.....C-11	
HD74LS273P.....C-10			
HD74LS32P.....C-9			
HD74LS374P.....C-10			



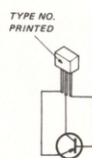
1SS119
1SS120
1SS133
1SS148



HZ ? ?N
RD ? ?ESB ?



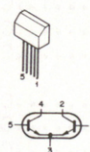
2SA1048
2SA1115



2SA1175
2SA1175F
2SA1175K



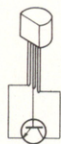
2SA1206
2SA1206K1



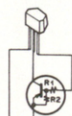
2SC1583



2SC2458
2SC2603G
2SC634SP

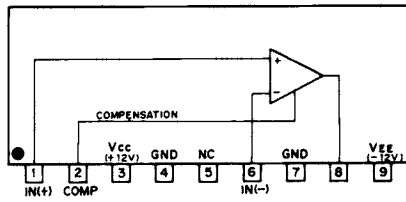


2SC2901

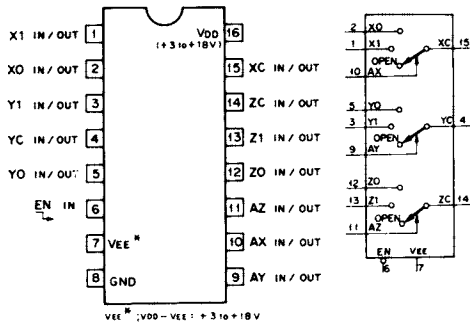


DTA114ES (R1=10K, R2=10K)

BX365A (SONY)
VIDEO AMPLIFIER
— SIDE VIEW —



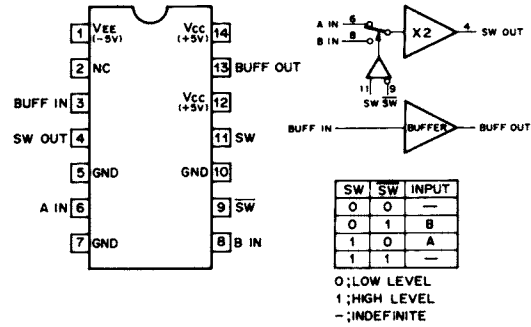
CD4053BE (RCA)
uPD4053BC (NEC)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CONT. INPUTS		ON CHANNEL	
EN	A (X,Y,Z)		
0	0	0	
0	1	1	
1	X	OPEN	

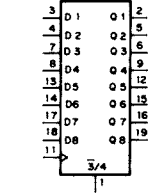
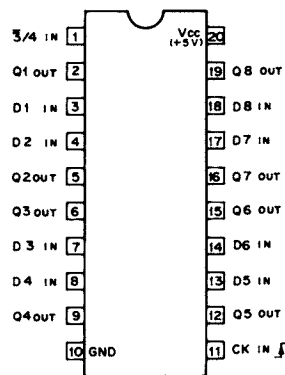
CX20158 (SONY)
VIDEO SWITCHER AND BUFFER
— TOP VIEW —



SW	SW	INPUT
0	0	—
0	1	B
1	0	A
1	1	—

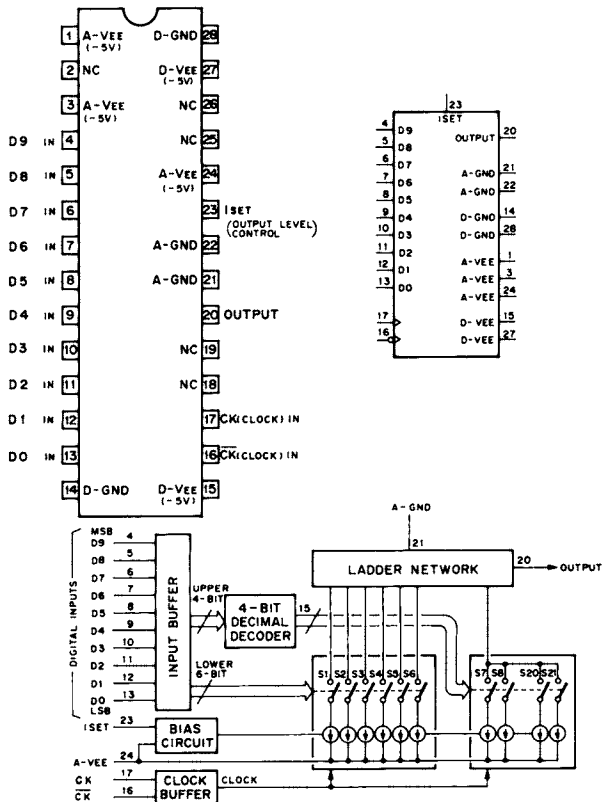
0; LOW LEVEL
1; HIGH LEVEL
—; INDEFINITE

CX20160 (SONY)
TTL OCTAL 3 OR 4 STAGE SHIFT REGISTER
— TOP VIEW —

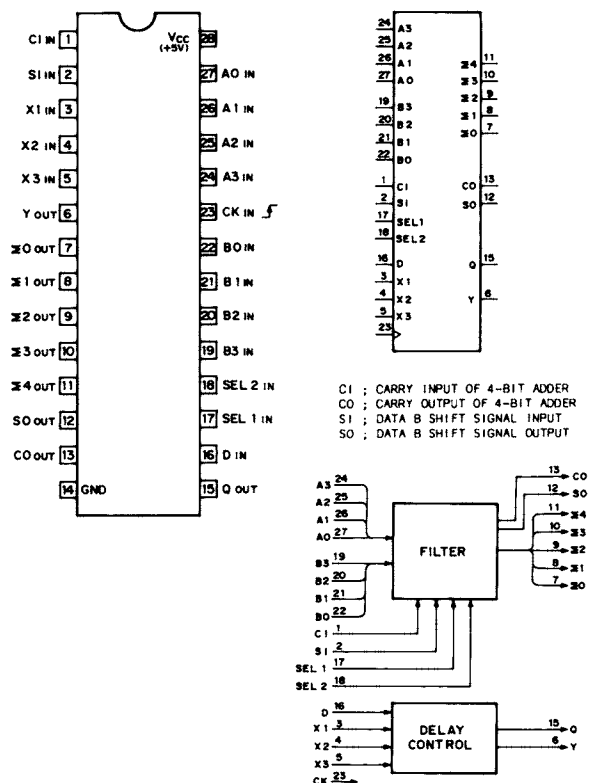


3/4; TOTAL STAGE SELECTION SIGNAL INPUT
H: 4 STAGES, L: 3 STAGES

CX20051A (SONY)
10-BIT D/A CONVERTER (ECL INPUT)
— TOP VIEW —

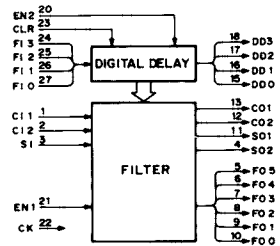
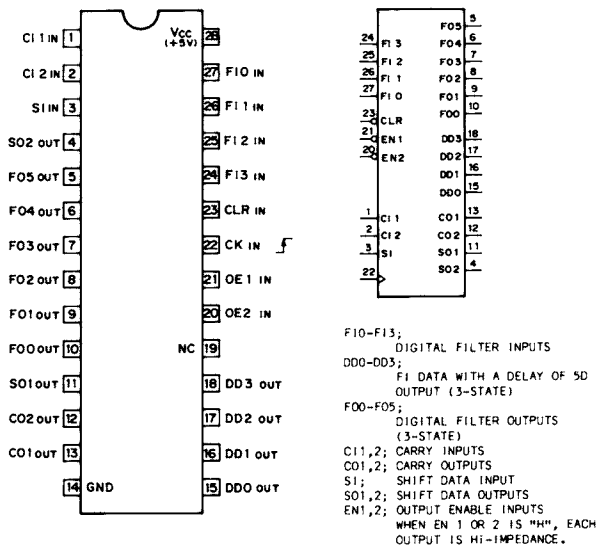


CX20161 (SONY)
TTL 4-BIT LINE ADDER
— TOP VIEW —

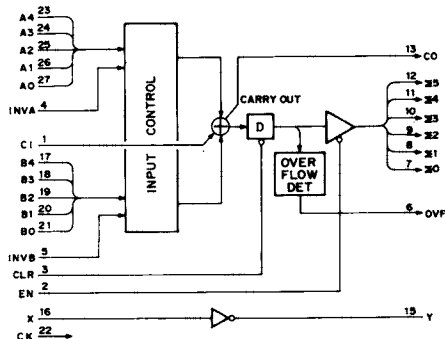
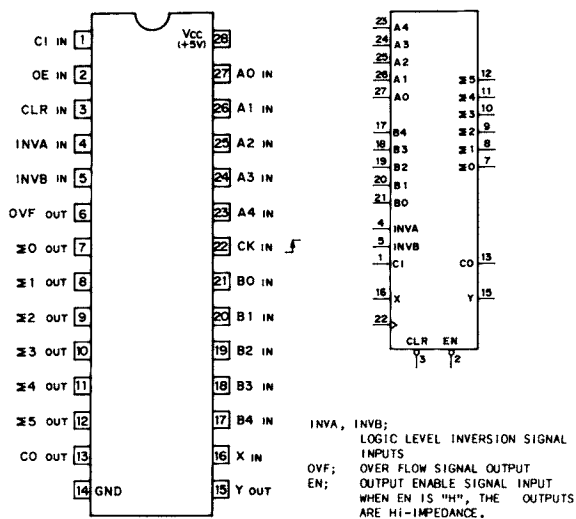


C1; CARRY INPUT OF 4-BIT ADDER
C0; CARRY OUTPUT OF 4-BIT ADDER
S1; DATA A SHIFT SIGNAL INPUT
S0; DATA B SHIFT SIGNAL INPUT

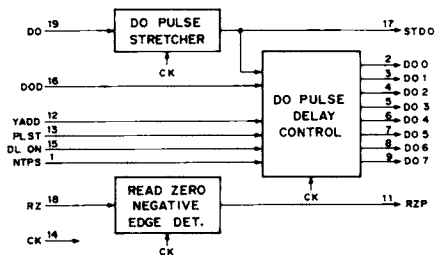
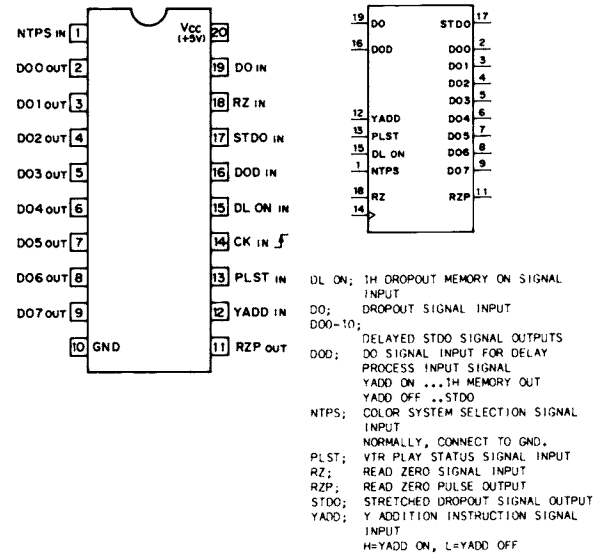
CX20165 (SONY)
TTL 4TH ORDER DIGITAL FILTER WITH 3-STATE OUTPUTS
— TOP VIEW —



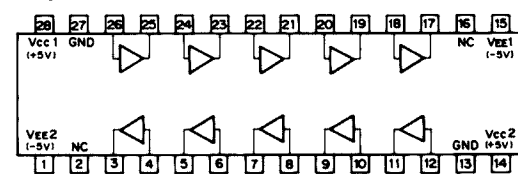
CX20167 (SONY)
TTL 5-BIT FULL ADDER WITH 3-STATE OUTPUTS
— TOP VIEW —



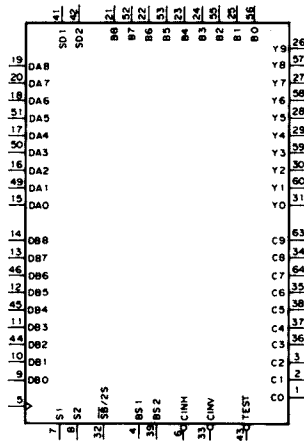
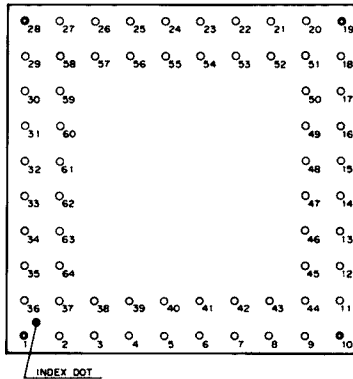
CX20219 (SONY)
BIPOLAR DROPOUT PULSE STRETCHER
— TOP VIEW —



CX22029 (SONY)
TTL-TO-ECL TRANSLATOR
— TOP VIEW —



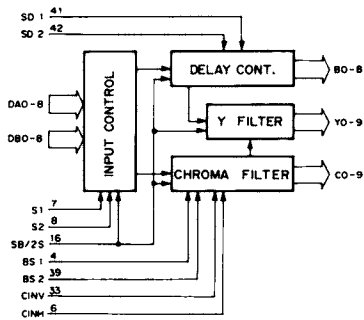
CX23082 (SONY)
C-MOS DIGITAL Y/C SEPARATION FILTER
— TOP VIEW —



PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1		O	C0	17	O		DA4	33	O		CINV	49	O		DA1
2		O	C1	18	O		DA6	34		O	C8	50	O		DA3
3		O	C2	19	O		DA8	35		O	C6	51	O		DA5
4	O		BS1	20	O		DA7	36		O	C3	52		O	B7
5	O		CK	21		O	B8	37		O	C4	53		O	B5
6	O		CINH	22		O	B6	38		O	C5	54	O		GND
7	O		S1	23		O	B4	39	O		BS2	55	O		B2
8	O		S2	24		O	B3	40	O		GND	56	O		B0
9	O		DB0	25		O	B1	41	O		SD1	57	O		Y8
10	O		DB1	26		O	Y9	42	O		SD2	58	O		Y6
11	O		DB3	27		O	Y7	43	O		TEST	59	O		Y3
12	O		DB5	28		O	Y5	44	O		DB2	60	O		Y1
13	O		DB7	29		O	Y4	45	O		DB4	61	O		VDD(+5V)
14	O		DB8	30		O	Y2	46	O		DB6	62	O		GND
15	O		DA0	31		O	Y0	47	O		VDD(+5V)	63	O		C9
16	O		DA2	32	O		SB/2S	48	O		GND	64	O		C7

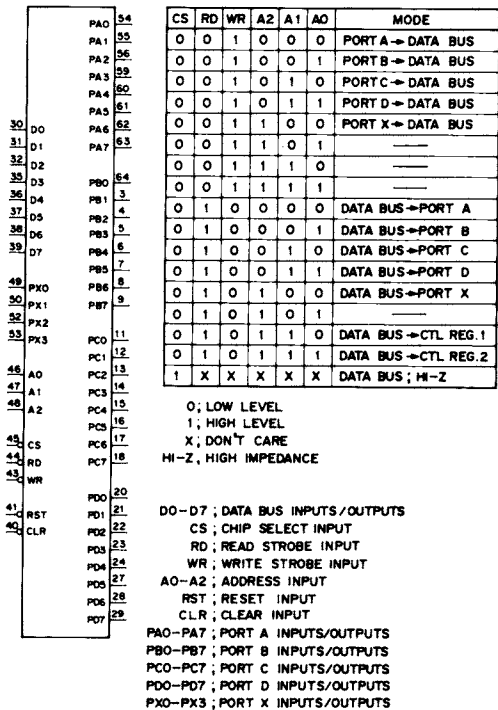
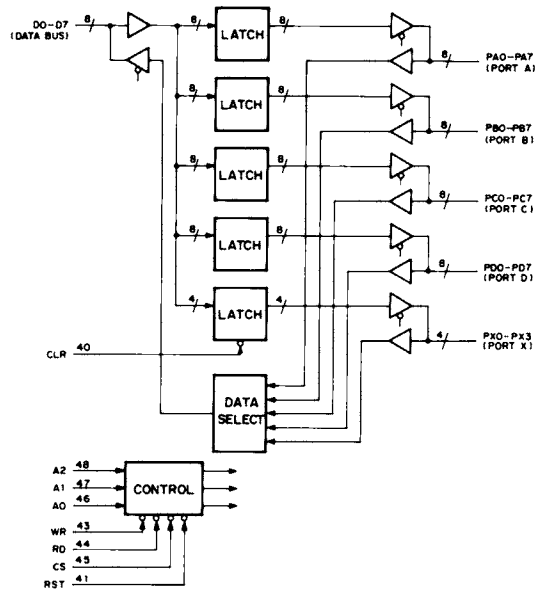
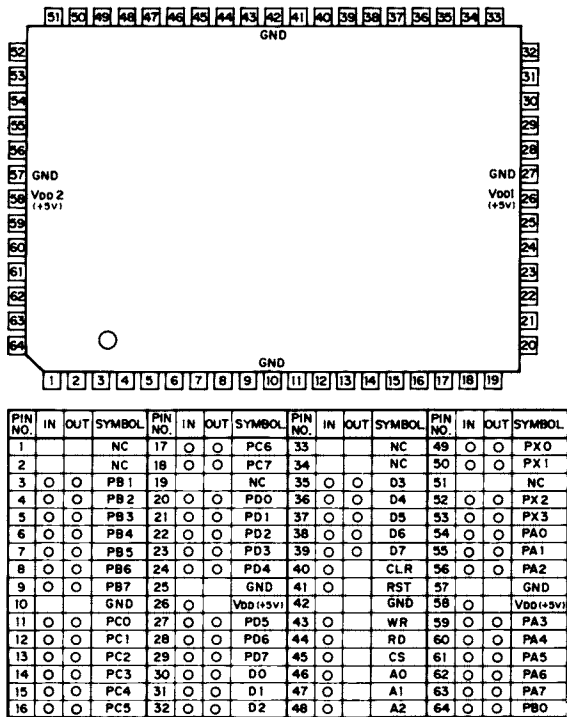
FUNCTIONAL PIN DEFINITION

SYMBOL PIN NO. DESCRIPTION

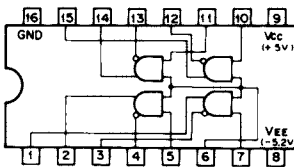


B0	56	BYPASS DATA OUTPUTS
B1	25	
B2	55	
B3	24	
B4	23	
B5	53	
B6	22	
B7	52	
B8	21	ROUND OFF BIT SELECTION SIGNAL 1 INPUT ROUND OFF BIT SELECTION SIGNAL 2 INPUT
BS1	4	
BS2	39	CHROMA DATA OUTPUTS
C0	1	
C1	2	
C2	3	
C3	36	
C4	37	
C5	38	
C6	35	
C7	64	CHROMA DATA INHIBIT SIGNAL INPUT CHROMA DATA INVERSION SIGNAL INPUT
C8	34	
C9	63	
CK	5	
CINH	6	
CINV	33	
DA0	15	
DA1	49	
DA2	16	DATA A INPUTS
DA3	50	
DA4	17	
DA5	51	
DA6	18	
DA7	20	
DA8	19	
DB0	9	
DB1	10	DATA B INPUTS
DB2	44	
DB3	11	
DB4	45	
DB5	12	
DB6	46	
DB7	13	
DB8	14	
S1	7	DATA A/B SELECTION SIGNAL 1 INPUT DATA A/B SELECTION SIGNAL 2 INPUT STRAIGHT BINARY/2'S COMPLEMENT CODE SELECTION SIGNAL INPUT DELAY CONTROL SIGNAL 1 INPUT DELAY CONTROL SIGNAL 2 INPUT TEST MODE SIGNAL INPUT
S2	8	
SB/2S	32	
SD1	41	
SD2	42	
TEST	43	
Y0	31	
Y1	60	
Y2	30	Y SIGNAL OUTPUTS
Y3	59	
Y4	29	
Y5	28	
Y6	58	
Y7	27	
Y8	57	
Y9	26	

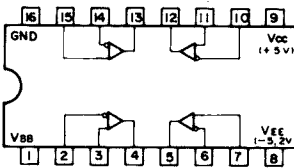
CXD1095Q (SONY) FLAT PACKAGE
C-MOS I/O PORT EXPANDER
— TOP VIEW —



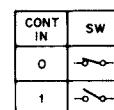
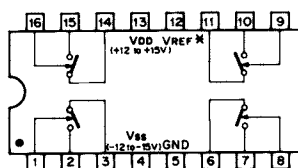
HD10124 (HITACHI)
MC10124L (MOTOROLA)
ECL TTL-TO-ECL TRANSLATOR
— TOP VIEW —



HD10125 (HITACHI)
MC10125L (MOTOROLA)
ECL ECL-TO-TTL TRANSLATOR
— TOP VIEW —



HI1-0201-5 (HARRIS)
C-MOS ANALOG SWITCH
— TOP VIEW —

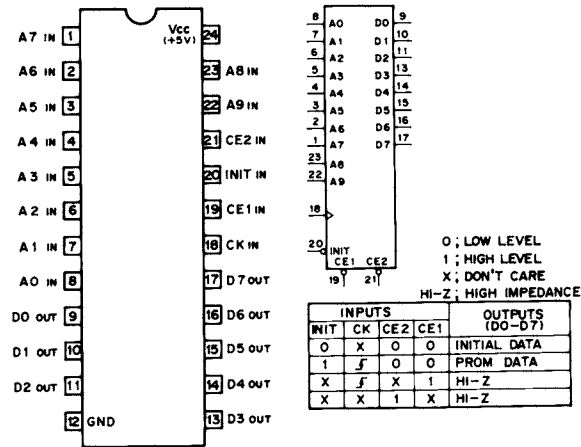


0; LOW LEVEL
1; HIGH LEVEL

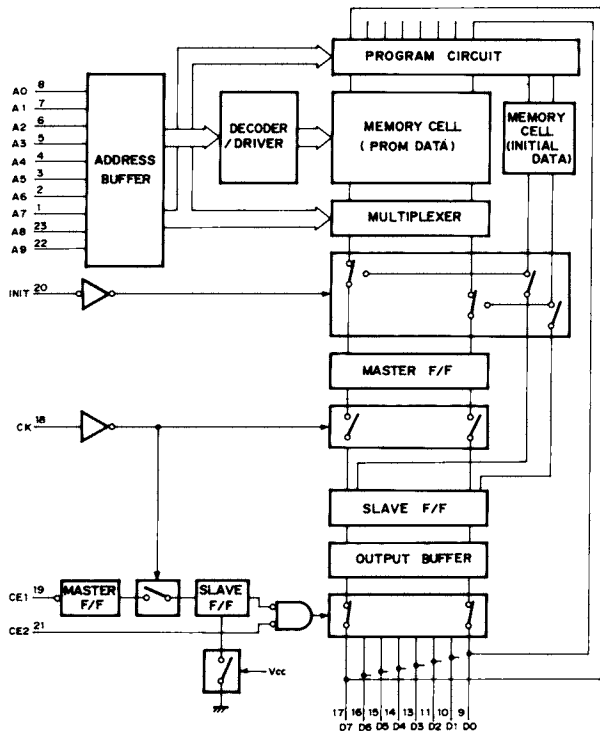
* NOTE

INTERFACIAL DEVICE	VREF CONNECTION
TTL	Open
C-MOS	Open
	To VDD of interfacial IC

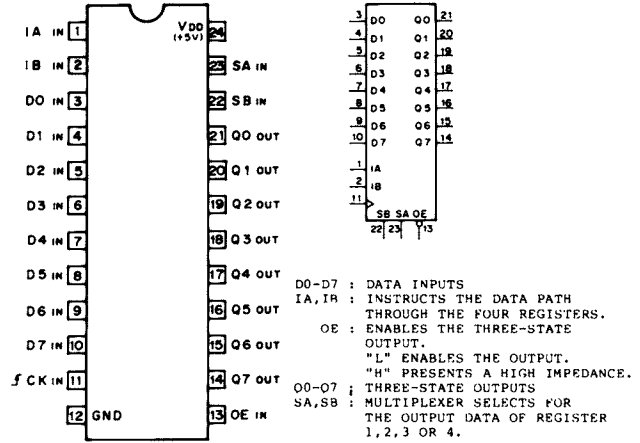
CY7C235-40PC (CYPRESS SEMI.) (ADDRESS SETUP TIME = 40nS)
8K (1024x8) REGISTERED OUTPUT PROM (3-STATE OUTPUT)
— TOP VIEW —



A0-A9 : ADDRESS INPUTS
D0-D7 : DATA OUTPUTS
CE2 : ASYNCHRONOUS CHIP ENABLE INPUT
CE1 : SYNCHRONOUS CHIP ENABLE INPUT
CK : CLOCK INPUT
INIT : ASYNCHRONOUS INITIALIZE INPUT

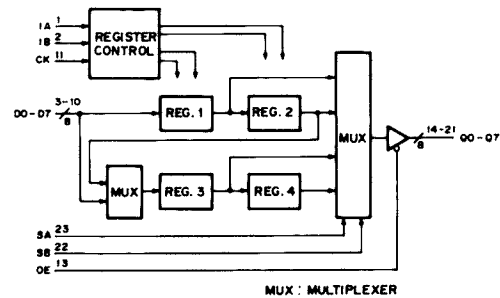


L29C520PC (LOGIC DEVICES)
CMOS 8-BIT 2-OR 4-LEVEL PIPELINE REGISTER WITH 3-STATE OUTPUT
— TOP VIEW —

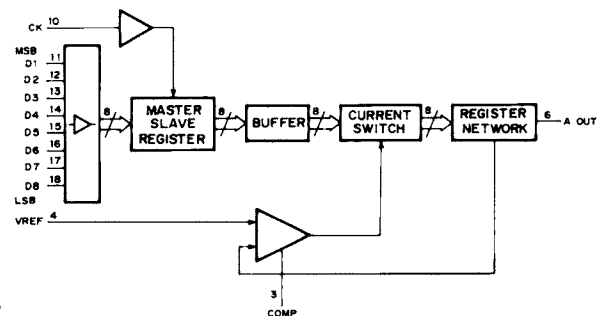
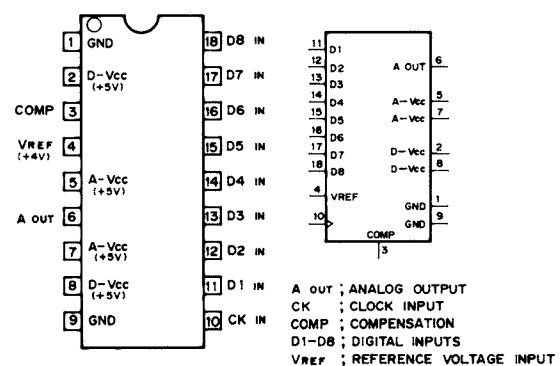


TRANSFER OF DATA				REGISTER SELECTED	
IA	IB	D	R	SA	SB
0	0	D-R1	R1-R2 R2-R3 R3-R4	0	0
0	1	D-R3	R3-R4 R1, R2 ON HOLD	0	1
1	0	D-R1	R1-R2 R3, R4 ON HOLD	1	0
1	1	ALL	ALL REGISTERS ON HOLD	1	1

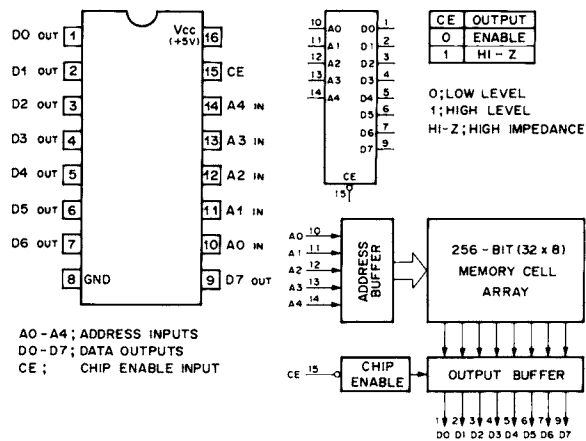
0 : LOW LEVEL D : DATA INPUT
1 : HIGH LEVEL R : REGISTER



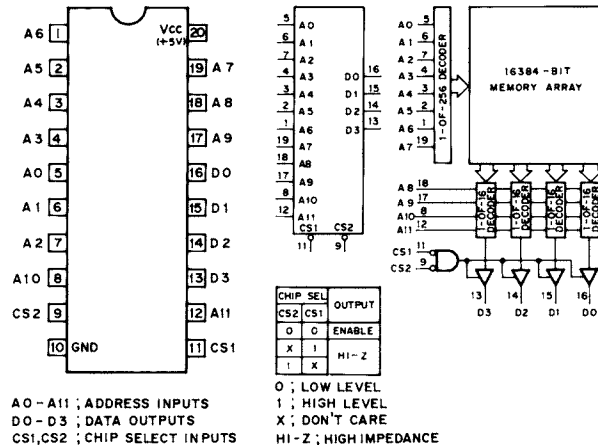
MB40778P (FUJITSU)
8-BIT VIDEO D/A CONVERTER
— TOP VIEW —



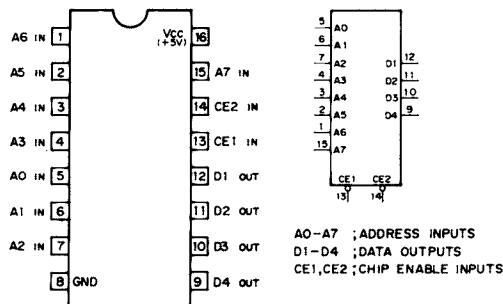
MB7112L (FUJITSU) (ACCESS TIME = 50 nS)
256-BIT (32x8) PROM WITH 3-STATE OUTPUT
— TOP VIEW —



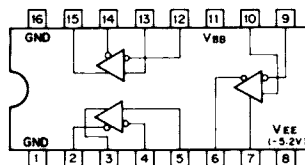
MB7134E (FUJITSU) (ACCESS TIME = 45 nS)
16384-BIT (4096x4) PROM WITH 3-STATE OUTPUT
— TOP VIEW —



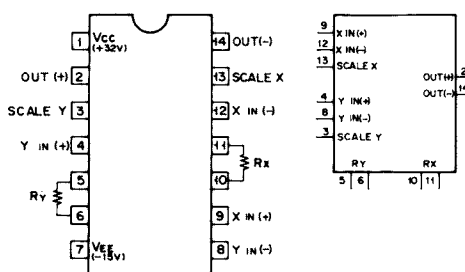
MB7114H (FUJITSU) (ACCESS TIME = 30nS)
1024-BIT (256x4) PROM
— TOP VIEW —



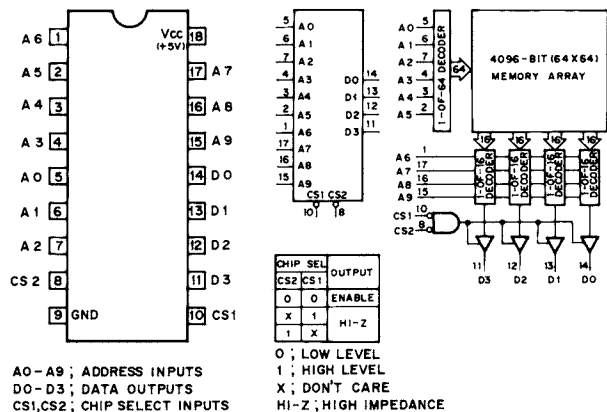
HD10116 (HITACHI)
MC10116L (MOTOROLA)
ECL DIFFERENTIAL OR/NOR LINE RECEIVER
— TOP VIEW —



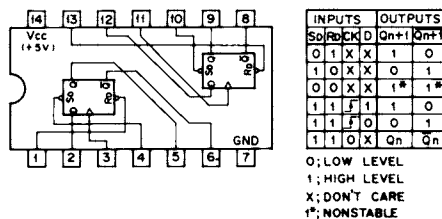
MC1595L (MOTOROLA)
LINEAR MULTIPLIER
— TOP VIEW —



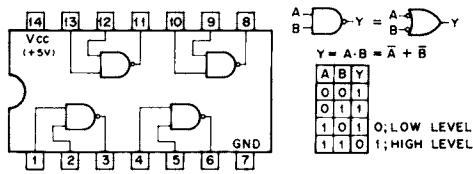
MB7122E (FUJITSU) (ACCESS TIME = 45 nS)
4096-BIT (1024x4) PROM WITH 3-STATE OUTPUT
— TOP VIEW —



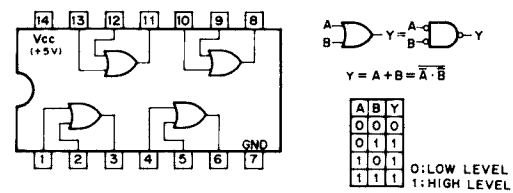
HD74LS74AP (HITACHI)
SN74ALS74AN (TI)
SN74LS74AN (TI)
TTL D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —



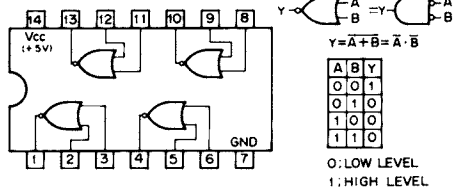
HD74LS00P (HITACHI)
SN74LS00N (TI)
TTL 2-INPUT POSITIVE-NAND GATE
— TOP VIEW —



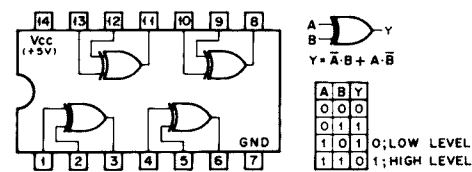
HD74LS32P (HITACHI)
SN74LS32N (TI)
TTL 2-INPUT POSITIVE-OR GATE
— TOP VIEW —



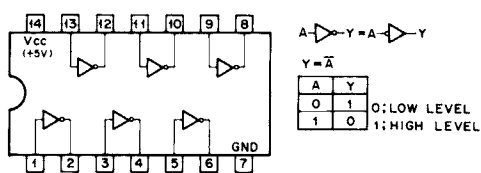
HD74LS02P (HITACHI)
SN74LS02N (TI)
TTL 2-INPUT POSITIVE-NOR GATE
— TOP VIEW —



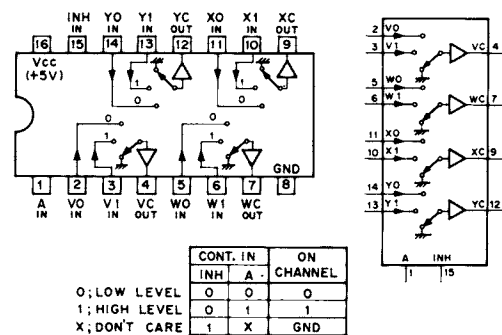
HD74LS86P (HITACHI)
SN74LS86N (TI)
TTL EXCLUSIVE OR GATE
— TOP VIEW —



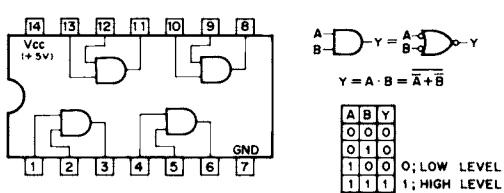
HD74LS04P (HITACHI)
SN74LS04N (TI)
TTL INVERTER
— TOP VIEW —



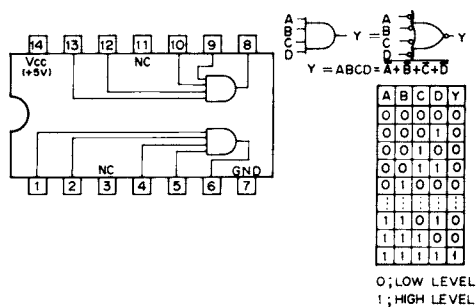
HD74LS157P (HITACHI)
SN74LS157N (TI)
TTL 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
— TOP VIEW —



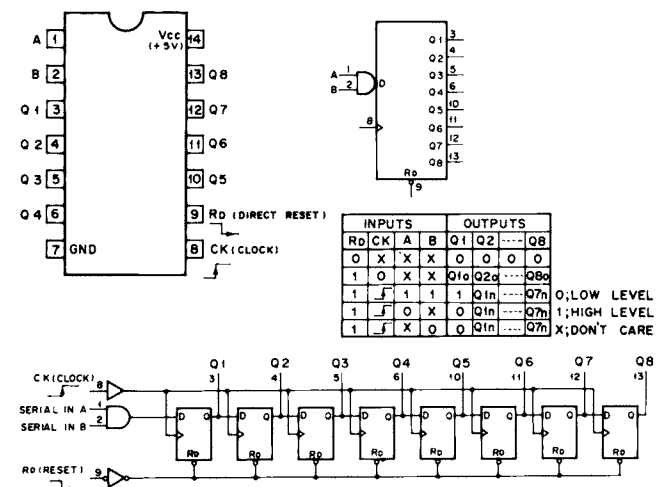
HD74LS08N (HITACHI)
SN74LS08N (TI)
TTL 2-INPUT POSITIVE-AND GATE
— TOP VIEW —



HD74LS21P (HITACHI)
SN74LS21N (TI)
TTL 4-INPUT POSITIVE AND GATE
— TOP VIEW —



HD74LS164P (HITACHI)
SN74LS164N (TI)
TTL 8-BIT PARALLEL-OUT SERIAL SHIFT REGISTER
— TOP VIEW —

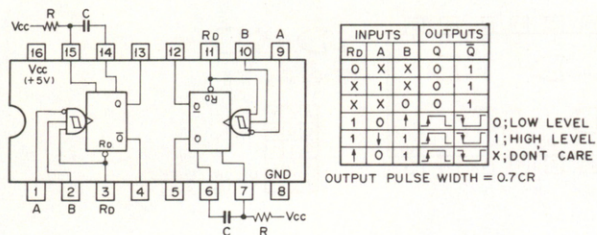


HD74LS221P (HITACHI)

SN74LS221N (TI)

TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT

— TOP VIEW —

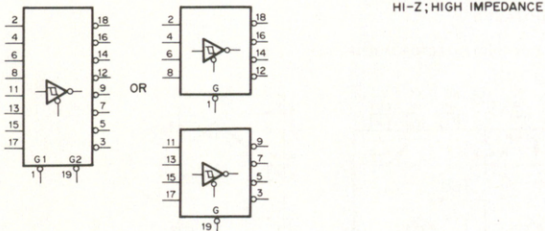
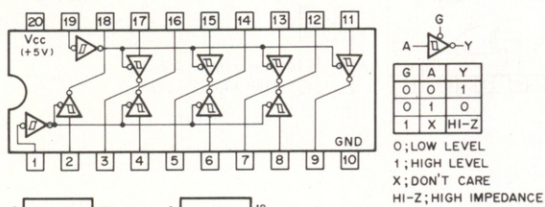


HD74LS240P (HITACHI)

SN74LS240N (TI)

TTL 3-STATE SCHMITT TRIGGER INVERTER/LINE DRIVER

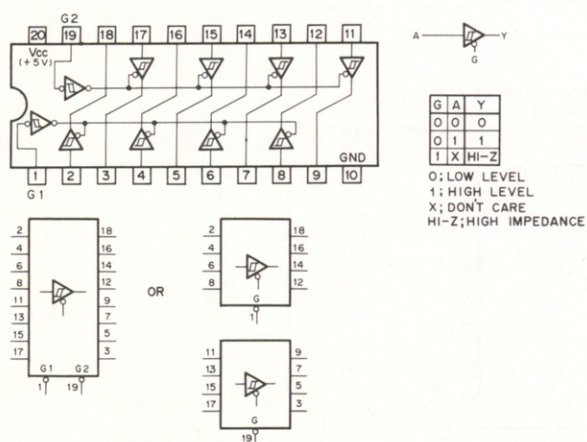
— TOP VIEW —



SN74LS244N (TI)

TTL 3-STATE SCHMITT TRIGGER BUFFER/DRIVER

— TOP VIEW —

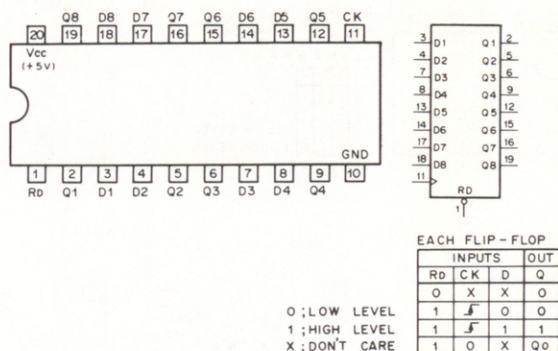


HD74LS273P (HITACHI)

SN74LS273N (TI)

TTL D-TYPE FLIP-FLOP WITH DIRECT RESET

— TOP VIEW —

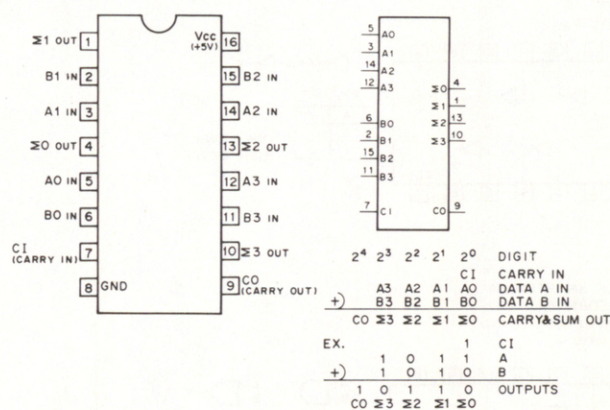


74F283PC (FSC)

SN74LS283N (TI)

TTL 4-BIT BINARY FULL ADDER

— TOP VIEW —



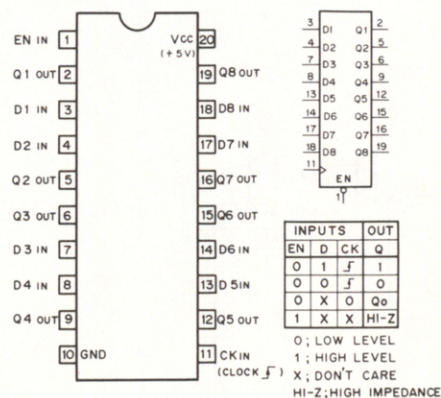
74F374PC (FSC)

HD74LS374P (HITACHI)

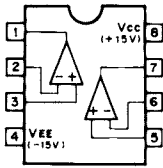
SN74LS374N (TI)

TTL 3-STATE OCTAL D-TYPE FLIP-FLOP

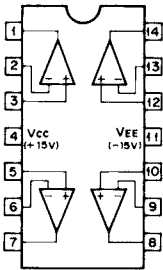
— TOP VIEW —



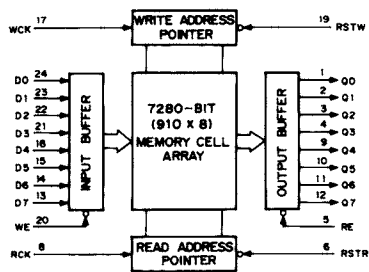
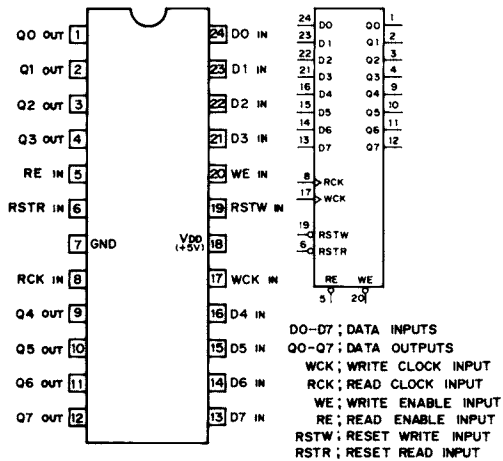
TL082CP (TI)
 uPC4082C (NEC)
 OPERATIONAL AMPLIFIER
 (J FET-INPUT)
 — TOP VIEW —



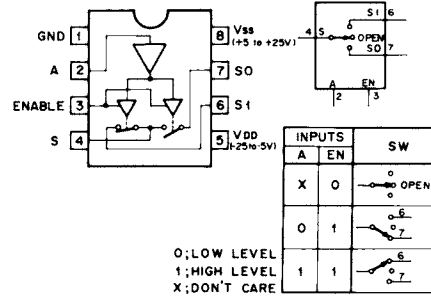
TL084CN (TI)
 OPERATIONAL AMPLIFIER
 (J FET-INPUT)
 — TOP VIEW —



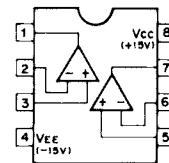
uPD41101C-2 (NEC) (ACCESS TIME = 27 nS)
 uPD41101C-3 (NEC) (ACCESS TIME = 27 nS)
 N-MOS 7280-BIT (910x8) FIFO MEMORY
 — TOP VIEW —



TL607CP (TI)
 P-MOS ANALOG SWITCH
 — TOP VIEW —



uPC4557C (NEC)
 OPERATIONAL AMPLIFIER (WIDE BAND, LOW NOISE)
 — TOP VIEW —



SECTION D

REPLACEABLE PARTS

補修用部品注意事項

(1) 安全重要部品

回路図, 電気部品表中、△印及び  で囲まれた部品は安全性を維持するために重要な部品です。これらの部品を交換するときには必ず指定の部品と交換してください。

(2) 部品の共通化

ソニーから供給される部品はセットに実装されているものと異なることがあります。これは部品の共通化, 改良等によるものです。

分解図や電気部品表には現時点での共通化された部品が記載されています。

(3) 部品の在庫

部品表中SP (Supply Code) 欄に “o” で示されている部品は交換頻度が低い部品ですので在庫していないことがあります、納期が長くなることがあります。

(4) コンデンサー, インダクター, 抵抗の単位

回路図, 分解図, 電気部品表中、特に明記したものを除き、下記の単位は省略されていることがあります。

コンデンサー : μF

インダクター : μH

抵抗 : Ω

NOTES ON REPAIR PARTS

(1) Safety Related Components Warning

Components identified by shading marked with Δ on the schematic diagrams and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to “accommodating the improved parts and/or engineering changes” or “standardization of genuine parts”.

This manual's exploded views and electrical spare parts list are indicating the part numbers of “the standardized genuine parts at present”.

(3) Stock of Parts

Parts marked with “o” in SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with “o” will be processed, but allow for additional delivery time.

(4) Units for Capacitors, Inductors and Resistors

The following units may be assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified :

Capacitors : μF

Inductors : μH

Resistors : ohm

NONPOLAR CAPACITOR, BKH-3010

Replacements for nonpolar capacitors not given in board parts lists are shown in the following list. If a capacitor with the desired working voltage is not found, choose one of a higher working voltage.

Part No. SP Description

1-107-019-00 s CAP, MICA 1.0pF+/-0.5pF 500V
1-107-039-00 s CAP, MICA 1.2pF+/-0.5pF 500V
1-107-040-00 s CAP, MICA 1.5pF+/-0.5pF 500V
1-107-041-00 s CAP, MICA 1.8pF+/-0.5pF 500V
1-107-042-00 s CAP, MICA 2.2pF+/-0.5pF 500V

1-107-043-00 s CAP, MICA 2.7pF+/-0.5pF 500V
1-107-044-00 s CAP, MICA 3.3pF+/-0.5pF 500V
1-107-045-00 s CAP, MICA 3.9pF+/-0.5pF 500V
1-107-046-00 s CAP, MICA 4.7pF+/-0.5pF 500V
1-107-026-00 s CAP, MICA 5.1pF+/-0.5pF 500V

1-107-047-00 s CAP, MICA 5.6pF+/-0.5pF 500V
1-107-048-00 s CAP, MICA 6.8pF+/-0.5pF 500V
1-107-049-00 s CAP, MICA 8.2pF+/-0.5pF 500V
1-107-202-00 s CAP, MICA 10pF 5% 500V
1-107-203-00 s CAP, MICA 11pF 5% 500V

1-107-204-00 s CAP, MICA 12pF 5% 500V
1-107-205-00 s CAP, MICA 13pF 5% 500V
1-107-206-00 s CAP, MICA 15pF 5% 500V
1-107-207-00 s CAP, MICA 16pF 5% 500V
1-107-208-00 s CAP, MICA 18pF 5% 500V

1-107-209-00 s CAP, MICA 20pF 5% 500V
1-107-210-00 s CAP, MICA 22pF 5% 500V
1-107-211-00 s CAP, MICA 24pF 5% 500V
1-107-157-00 s CAP, MICA 27pF 5% 500V
1-107-158-00 s CAP, MICA 30pF 5% 500V

1-107-159-00 s CAP, MICA 33pF 5% 500V
1-107-074-00 s CAP, MICA 36pF 5% 50V
1-107-075-00 s CAP, MICA 39pF 5% 50V
1-107-076-00 s CAP, MICA 43pF 5% 50V
1-107-077-00 s CAP, MICA 47pF 5% 50V

1-107-164-00 s CAP, MICA 51pF 5% 500V
1-107-165-00 s CAP, MICA 56pF 5% 500V
1-107-166-00 s CAP, MICA 62pF 5% 500V
1-107-036-00 s CAP, MICA 68pF 5% 500V
1-107-167-00 s CAP, MICA 75pF 5% 500V

1-107-083-00 s CAP, MICA 82pF 5% 50V
1-107-084-00 s CAP, MICA 91pF 5% 50V
1-107-085-00 s CAP, MICA 100pF 5% 50V
1-107-086-00 s CAP, MICA 110pF 5% 50V
1-107-087-00 s CAP, MICA 120pF 5% 50V

1-109-538-00 s CAP, MICA 130pF 5% 100V
1-109-539-00 s CAP, MICA 150pF 5% 100V
1-107-090-00 s CAP, MICA 160pF 5% 50V
1-109-540-00 s CAP, MICA 180pF 5% 100V
1-109-541-00 s CAP, MICA 200pF 5% 100V

1-109-542-00 s CAP, MICA 220pF 5% 100V
1-109-545-00 s CAP, MICA 270pF 5% 100V
1-109-547-00 s CAP, MICA 330pF 5% 100V
1-109-549-00 s CAP, MICA 390pF 5% 100V
1-109-633-00 s CAP, MICA 470pF 2% 500V

1-109-555-00 s CAP, MICA 560pF 5% 100V
1-109-635-00 s CAP, MICA 680pF 2% 500V

(NONPOLAR CAPACITOR, BKH-3010)

Part No. SP Description

1-161-039-00 s CAP, CERAMIC 0.001 10% 50V
1-161-041-00 s CAP, CERAMIC 0.0015 10% 50V
1-161-043-00 s CAP, CERAMIC 0.0022 10% 50V
1-161-045-00 s CAP, CERAMIC 0.0033 10% 50V
1-161-047-00 s CAP, CERAMIC 0.0047 10% 50V

1-161-049-00 s CAP, CERAMIC 0.0068 10% 50V
1-161-051-00 s CAP, CERAMIC 0.01 10% 50V
1-161-053-00 s CAP, CERAMIC 0.015 10% 50V
1-161-055-00 s CAP, CERAMIC 0.022 10% 50V
1-161-057-00 s CAP, CERAMIC 0.033 10% 50V

1-161-021-11 s CAP, CERAMIC 0.047 10% 25V
1-161-059-00 s CAP, CERAMIC 0.047 10% 50V
1-161-061-00 s CAP, CERAMIC 0.068 10% 50V
1-161-772-11 s CAP, CERAMIC 0.1 10% 25V
1-161-063-00 s CAP, CERAMIC 0.1 10% 50V

ELECTROLYTIC CAPACITOR, BKH-3010

Replacement for electrolytic capacitors not given in board parts lists are shown in the following list. If a capacitor with the desired working voltage is not found, choose one of a higher working voltage.

Part No. SP Description

1-124-902-00 s CAP, ELECT 0.47 20% 50V
1-124-791-11 s CAP, ELECT 1.0 20% 100V
1-124-925-11 s CAP, ELECT 2.2 20% 100V
1-123-382-00 s CAP, ELECT 3.3 20% 100V
1-124-927-00 s CAP, ELECT 4.7 20% 100V

1-123-875-91 s CAP, ELECT 10 20% 50V
1-124-908-11 s CAP, ELECT 22 20% 50V
1-124-963-11 s CAP, ELECT 33 20% 16V
1-124-482-11 s CAP, ELECT 33 20% 35V
1-124-917-11 s CAP, ELECT 33 20% 63V

1-124-446-11 s CAP, ELECT 47 20% 10V
1-124-477-11 s CAP, ELECT 47 20% 25V
1-124-910-11 s CAP, ELECT 47 20% 50V
1-124-443-00 s CAP, ELECT 100 20% 10V
1-126-101-11 s CAP, ELECT 100 20% 16V

1-124-478-11 s CAP, ELECT 100 20% 25V
1-124-122-11 s CAP, ELECT 100 20% 50V
1-124-444-00 s CAP, ELECT 220 20% 10V
1-124-120-11 s CAP, ELECT 220 20% 25V
1-124-484-11 s CAP, ELECT 220 20% 35V

1-124-911-11 s CAP, ELECT 220 20% 50V
1-124-442-00 s CAP, ELECT 330 20% 6.3V
1-124-604-00 s CAP, ELECT 330 20% 10V
1-124-119-00 s CAP, ELECT 330 20% 16V
1-124-479-11 s CAP, ELECT 330 20% 25V

1-124-485-11 s CAP, ELECT 330 20% 35V
1-124-912-11 s CAP, ELECT 330 20% 50V
1-124-472-11 s CAP, ELECT 470 20% 10V
1-124-475-11 s CAP, ELECT 470 20% 16V
1-124-480-11 s CAP, ELECT 470 20% 25V

1-126-104-11 s CAP, ELECT 470 20% 35V
1-124-913-11 s CAP, ELECT 470 20% 50V

RESISTOR, BKH-3010

Replacements for resistors not given in board parts lists are shown in the following list.

Part No. SP Description

1-249-381-11 s RES, CARBON 1.0 5% 1/4W
1-249-382-11 s RES, CARBON 1.2 5% 1/4W
1-249-383-11 s RES, CARBON 1.5 5% 1/4W
1-249-384-11 s RES, CARBON 1.8 5% 1/4W
1-249-385-11 s RES, CARBON 2.2 5% 1/4W

1-249-386-11 s RES, CARBON 2.7 5% 1/4W
1-249-387-11 s RES, CARBON 3.3 5% 1/4W
1-249-388-11 s RES, CARBON 3.9 5% 1/4W
1-249-389-11 s RES, CARBON 4.7 5% 1/4W
1-249-390-11 s RES, CARBON 5.6 5% 1/4W

1-249-391-11 s RES, CARBON 6.8 5% 1/4W
1-249-392-11 s RES, CARBON 8.2 5% 1/4W
1-249-393-11 s RES, CARBON 10 5% 1/4W
1-249-394-11 s RES, CARBON 12 5% 1/4W
1-249-395-11 s RES, CARBON 15 5% 1/4W

1-249-396-11 s RES, CARBON 18 5% 1/4W
1-249-397-11 s RES, CARBON 22 5% 1/4W
1-249-398-11 s RES, CARBON 27 5% 1/4W
1-249-399-11 s RES, CARBON 33 5% 1/4W
1-249-400-11 s RES, CARBON 39 5% 1/4W

1-249-401-11 s RES, CARBON 47 5% 1/4W
1-249-402-11 s RES, CARBON 56 5% 1/4W
1-249-403-11 s RES, CARBON 68 5% 1/4W
1-215-394-00 s RES, METAL 75 1% 1/6W
1-249-404-11 s RES, CARBON 82 5% 1/4W

1-249-405-11 s RES, CARBON 100 5% 1/4W
1-249-406-11 s RES, CARBON 120 5% 1/4W
1-249-407-11 s RES, CARBON 150 5% 1/4W
1-249-408-11 s RES, CARBON 180 5% 1/4W
1-249-409-11 s RES, CARBON 220 5% 1/4W

1-249-410-11 s RES, CARBON 270 5% 1/4W
1-249-411-11 s RES, CARBON 330 5% 1/4W
1-249-412-11 s RES, CARBON 390 5% 1/4W
1-249-413-11 s RES, CARBON 470 5% 1/4W
1-249-414-11 s RES, CARBON 560 5% 1/4W

1-249-415-11 s RES, CARBON 680 5% 1/4W
1-249-416-11 s RES, CARBON 820 5% 1/4W
1-249-417-11 s RES, CARBON 1.0k 5% 1/4W
1-249-418-11 s RES, CARBON 1.2k 5% 1/4W
1-249-419-11 s RES, CARBON 1.5k 5% 1/4W

1-249-420-11 s RES, CARBON 1.8k 5% 1/4W
1-249-421-11 s RES, CARBON 2.2k 5% 1/4W
1-249-422-11 s RES, CARBON 2.7k 5% 1/4W
1-249-423-11 s RES, CARBON 3.3k 5% 1/4W
1-249-424-11 s RES, CARBON 3.9k 5% 1/4W

1-249-425-11 s RES, CARBON 4.7k 5% 1/4W
1-249-426-11 s RES, CARBON 5.6k 5% 1/4W
1-249-427-11 s RES, CARBON 6.8k 5% 1/4W
1-249-428-11 s RES, CARBON 8.2k 5% 1/4W
1-249-429-11 s RES, CARBON 10k 5% 1/4W

1-249-430-11 s RES, CARBON 12k 5% 1/4W
1-249-431-11 s RES, CARBON 15k 5% 1/4W
1-249-432-11 s RES, CARBON 18k 5% 1/4W
1-249-433-11 s RES, CARBON 22k 5% 1/4W
1-249-434-11 s RES, CARBON 27k 5% 1/4W

(RESISTOR, BKH-3010)

Part No. SP Description

1-249-435-11 s RES, CARBON 33k 5% 1/4W
1-249-436-11 s RES, CARBON 39k 5% 1/4W
1-249-437-11 s RES, CARBON 47k 5% 1/4W
1-249-438-11 s RES, CARBON 56k 5% 1/4W
1-249-439-11 s RES, CARBON 68k 5% 1/4W

1-249-440-11 s RES, CARBON 82k 5% 1/4W
1-249-441-11 s RES, CARBON 100k 5% 1/4W
1-215-471-00 s RES, METAL 120k 1% 1/6W
1-215-473-00 s RES, METAL 150k 1% 1/6W
1-215-475-00 s RES, METAL 180k 1% 1/6W

1-215-477-00 s RES, METAL 220k 1% 1/6W
1-215-479-00 s RES, METAL 270k 1% 1/6W
1-215-481-00 s RES, METAL 330k 1% 1/6W
1-215-483-00 s RES, METAL 390k 1% 1/6W
1-215-485-00 s RES, METAL 470k 1% 1/6W

1-215-487-00 s RES, METAL 560k 1% 1/6W
1-215-489-00 s RES, METAL 680k 1% 1/6W
1-215-491-00 s RES, METAL 820k 1% 1/6W
1-215-493-00 s RES, METAL 1.0M 1% 1/6W

PR-91 BOARD, BKH-3010

Ref.No. or Q'ty	Part No.	SP Description
1pc	X-3714-529-1	o PLATE ASSY, SHIELD
3pcs	2-282-313-00	s KNOB, VR
2pcs	3-714-634-01	o LEVER, PC BOARD
2pcs	3-714-691-01	o PIN, SPRING
3pcs	7-621-737-08	s SET-SCT,HEX. 2.6X3,FLAT POINT
4pcs	7-622-207-05	s N 2.6, TYPE 2
4pcs	7-628-254-40	s SCREW +PS 2.6X12
9pcs	7-682-948-01	s SCREW +PSW 3X8
2pcs	7-685-133-19	s SCREW +BTP 2.6X6 TYPE2 N-S
C1	1-124-270-11	s CAP, ELECT, NONPOLAR 0.47uF 20% 50V
C2	1-124-270-11	s CAP, ELECT, NONPOLAR 0.47uF 20% 50V
C3	1-124-270-11	s CAP, ELECT, NONPOLAR 0.47uF 20% 50V
C5	1-130-491-00	s CAP, MYLAR 0.047uF 5% 50V
C7	1-130-475-00	s CAP, MYLAR 0.0022uF 5% 50V
C10	1-109-554-00	s CAP, MICA 510PF 5% 100V
C12	1-130-491-00	s CAP, MYLAR 0.047uF 5% 50V
C13	1-130-475-00	s CAP, MYLAR 0.0022uF 5% 50V
C19	1-109-750-00	s CAP, MICA 29PF +/-0.5PF 100V
C20	1-109-750-00	s CAP, MICA 29PF +/-0.5PF 100V
C21	1-109-750-00	s CAP, MICA 29PF +/-0.5PF 100V
C22	1-109-750-00	s CAP, MICA 29PF +/-0.5PF 100V
C23	1-109-750-00	s CAP, MICA 29PF +/-0.5PF 100V
C24	1-109-775-00	s CAP, MICA 373PF 1% 100V
C25	1-109-775-00	s CAP, MICA 373PF 1% 100V
C26	1-109-775-00	s CAP, MICA 373PF 1% 100V
C27	1-109-775-00	s CAP, MICA 373PF 1% 100V
C28	1-109-775-00	s CAP, MICA 373PF 1% 100V
C29	1-109-554-00	s CAP, MICA 510PF 5% 100V
C30	1-109-554-00	s CAP, MICA 510PF 5% 100V
C33	1-124-462-00	s CAP, ELECT 10uF 20% 16V
C101	1-124-522-11	s CAP, ELECT 270uF 20% 16V
C102	1-124-522-11	s CAP, ELECT 270uF 20% 16V
C107	1-124-522-11	s CAP, ELECT 270uF 20% 16V
C108	1-124-522-11	s CAP, ELECT 270uF 20% 16V
C109	1-124-518-11	s CAP, ELECT 470uF 20% 6.3V
C111	1-161-485-00	s CAP, CERAMIC 0.1uF 50V
C112	1-124-518-11	s CAP, ELECT 470uF 20% 6.3V
C114	1-124-518-11	s CAP, ELECT 470uF 20% 6.3V
C115	1-124-518-11	s CAP, ELECT 470uF 20% 6.3V
C118	1-161-485-00	s CAP, CERAMIC 0.1uF 50V
C120	1-124-518-11	s CAP, ELECT 470uF 20% 6.3V
C122	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C123	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C124	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C126	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C129	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C132	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C133	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C134	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C140	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C144	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C145	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V

(PR-91 BOARD, BKH-3010)

Ref.No. or Q'ty	Part No.	SP Description
C152	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C154	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C162	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C165	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C167	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C174	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C176	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C184	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C185	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C186	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C187	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C207	1-131-374-00	s CAP, TANT 33uF 10% 16V
C209	1-131-374-00	s CAP, TANT 33uF 10% 16V
C222	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C224	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
C230	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C231	1-124-234-00	s CAP, ELECT 22uF 20% 16V
C238	1-124-224-00	s CAP, ELECT 47uF 20% 6.3V
CN309	1-506-748-11	s RECEP, DIN 96P MALE
CN310	1-506-748-11	s RECEP, DIN 96P MALE
CP1	1-235-102-00	s CR BLOCK
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-109-99	s DIODE RD7.5ESB
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-109-79	s DIODE RD4.7ESB
FL1	1-235-150-00	s FILTER, LOW-PASS
FL2	1-235-151-00	s FILTER, BANDPASS 3.58MHz
FL3	1-235-152-00	s FILTER, BANDPASS 3.58MHz
FL4	1-235-154-00	s FILTER, LOW-PASS
FL5	1-236-001-11	s FILTER, LOW-PASS
ICA2	8-752-015-81	s IC CX20158
ICA6	8-749-936-51	s IC BX-365A
ICB2	8-752-015-81	s IC CX20158
ICB7	8-759-906-07	s IC TL607CP
ICB8	8-759-145-57	s IC UPC4557C
ICC6	8-759-015-95	s IC MC1595L
ICC7	8-759-990-82	s IC TL082CP
ICC8	8-759-990-82	s IC TL082CP
ICC10	8-752-005-11	s IC CX20051A
ICC11	8-759-140-53	s IC UPD4053BC
ICC13	8-759-990-82	s IC TL082CP
ICD7	8-759-990-82	s IC TL082CP
ICD8	8-759-906-07	s IC TL607CP
ICE1	8-759-001-16	s IC MC10116L
ICE2	8-759-902-21	s IC SN74LS221N
ICE3	8-759-902-21	s IC SN74LS221N
ICE4	8-759-918-39	s IC CX20167
ICE5	8-759-901-57	s IC SN74LS157N
ICE6	8-759-903-74	s IC SN74LS374N
ICE7	8-759-903-74	s IC SN74LS374N
ICE8	8-759-918-34	s IC CX20161
ICE9	8-759-918-33	s IC CX20160
ICE10	8-759-902-73	s IC SN74LS273N
ICE11	8-759-918-39	s IC CX20167
ICE12	8-759-301-24	s IC HD10124
ICF1	8-759-300-25	s IC HD10125

NOTE : Please see pages D-2 and D-3 for the
part numbers of capacitors and resistors
that are not listed in the parts list.

(PR-91 BOARD, BKH-3010)

Ref.No. or Q'ty	Part No.	SP	Description
ICF3	8-759-918-31	s	IC CX23082
ICF4	8-759-918-39	s	IC CX20167
ICF5	8-759-901-57	s	IC SN74LS157N
ICF6	8-759-147-02	s	IC UPD42101C-3
ICF8	8-759-918-34	s	IC CX20161
ICF9	8-759-903-74	s	IC SN74LS374N
ICF10	8-759-903-74	s	IC SN74LS374N
ICF11	8-759-918-39	s	IC CX20167
ICF12	8-759-301-24	s	IC HD10124
ICG1	8-759-903-74	s	IC SN74LS374N
ICG2	8-759-903-74	s	IC SN74LS374N
ICG3	8-759-918-33	s	IC CX20160
ICG4	8-759-989-69	s	IC SN74LS86AN
ICG5	8-759-901-57	s	IC SN74LS157N
ICG6	8-759-147-02	s	IC UPD42101C-3
ICG7	8-759-903-74	s	IC SN74LS374N
ICG8	8-759-918-34	s	IC CX20161
ICG9	8-759-918-38	s	IC CX20165
ICG10	8-759-918-39	s	IC CX20167
ICG11	8-759-903-74	s	IC SN74LS374N
ICG12	8-759-903-74	s	IC SN74LS374N
ICG13	8-759-903-74	s	IC SN74LS374N
ICH1	8-759-903-74	s	IC SN74LS374N
ICH2	8-759-918-33	s	IC CX20160
ICH3	8-759-918-33	s	IC CX20160
ICH4	8-759-989-69	s	IC SN74LS86AN
ICH5	8-759-901-57	s	IC SN74LS157N
ICH6	8-759-933-52	s	IC MB40778P
ICH7	8-759-903-74	s	IC SN74LS374N
ICH8	8-759-918-34	s	IC CX20161
ICH9	8-759-918-38	s	IC CX20165
ICH10	8-759-918-39	s	IC CX20167
ICH11	8-759-906-76	s	IC 74F283PC
ICH12	8-759-906-76	s	IC 74F283PC
ICH13	8-759-903-74	s	IC SN74LS374N
ICJ2	8-759-938-68	s	IC CXD1095Q
ICJ3	8-759-903-74	s	IC SN74LS374N
ICJ4	8-759-902-40	s	IC SN74LS240N
ICJ5	8-759-900-04	s	IC SN74LS04N
ICJ6	8-759-900-00	s	IC SN74LS00N
ICJ7	8-759-900-08	s	IC SN74LS08N
ICJ8	8-759-918-32	s	IC CX20219
ICJ9	8-759-903-74	s	IC SN74LS374N
ICJ10	8-759-903-74	s	IC SN74LS374N
ICJ11	8-759-918-33	s	IC CX20160
ICJ12	8-759-903-74	s	IC SN74LS374N
ICJ13	8-759-900-32	s	IC SN74LS32N
ICK3	8-759-900-02	s	IC SN74LS02N
ICK4	8-759-900-02	s	IC SN74LS02N
ICK5	8-759-900-08	s	IC SN74LS08N
ICK6	8-759-900-08	s	IC SN74LS08N
ICK7	8-759-900-69	s	IC SN74ALS74AN
ICK8	8-759-900-74	s	IC SN74LS74AN
ICK9	8-759-900-21	s	IC SN74LS21N
ICK10	8-759-989-69	s	IC SN74LS86AN

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Ref.No. or Q'ty	Part No.	SP	Description
ICK11	8-759-989-69	s	IC SN74LS86AN
ICK12	8-759-900-04	s	IC SN74LS04N
ICK13	8-759-900-00	s	IC SN74LS00N
ICK14	8-759-901-64	s	IC SN74LS164N
L1	1-408-646-00	s	INDUCTOR, 2.1UH 2%
L2	1-408-646-00	s	INDUCTOR, 2.1UH 2%
L3	1-408-646-00	s	INDUCTOR, 2.1UH 2%
L4	1-408-646-00	s	INDUCTOR, 2.1UH 2%
L5	1-408-646-00	s	INDUCTOR, 2.1UH 2%
L6	1-408-409-00	s	INDUCTOR 10UH 5%
L7	1-408-409-00	s	INDUCTOR 10UH 5%
L8	1-408-425-00	s	INDUCTOR 220UH 5%
L9	1-408-409-00	s	INDUCTOR 10UH 5%
L10	1-421-370-00	s	COIL, CHOKE
L11	1-421-370-00	s	COIL, CHOKE
L12	1-421-370-00	s	COIL, CHOKE
L13	1-421-370-00	s	COIL, CHOKE
L14	1-421-370-00	s	COIL, CHOKE
L15	1-408-409-00	s	INDUCTOR 10UH 5%
L16	1-408-409-00	s	INDUCTOR 10UH 5%
L17	1-408-409-00	s	INDUCTOR 10UH 5%
Q1	8-729-112-06	s	TRANSISTOR 2SA1206
Q2	8-729-112-06	s	TRANSISTOR 2SA1206
Q3	8-729-190-12	s	TRANSISTOR 2SC2901
Q4	8-729-245-82	s	TRANSISTOR 2SC2458-Y
Q5	8-729-245-82	s	TRANSISTOR 2SC2458-Y
Q6	8-729-204-83	s	TRANSISTOR 2SA1048-GR
Q7	8-729-245-82	s	TRANSISTOR 2SC2458-Y
Q8	8-729-204-83	s	TRANSISTOR 2SA1048-GR
Q9	8-729-204-83	s	TRANSISTOR 2SA1048-GR
Q10	8-729-658-32	s	TRANSISTOR 2SC1583
Q11	8-729-204-83	s	TRANSISTOR 2SA1048-GR
Q12	8-729-600-27	s	TRANSISTOR 2SC634SP
Q13	8-729-600-27	s	TRANSISTOR 2SC634SP
Q14	8-729-900-61	s	TRANSISTOR DTA114ES
R10	1-215-459-00	s	RES, METAL 39K 1% 1/6W
R12	1-215-441-00	s	RES, METAL 6.8K 1% 1/6W
R13	1-215-441-00	s	RES, METAL 6.8K 1% 1/6W
R14	1-215-459-00	s	RES, METAL 39K 1% 1/6W
R16	1-215-459-00	s	RES, METAL 39K 1% 1/6W
R18	1-215-441-00	s	RES, METAL 6.8K 1% 1/6W
R19	1-215-441-00	s	RES, METAL 6.8K 1% 1/6W
R20	1-215-459-00	s	RES, METAL 39K 1% 1/6W
R22	1-215-459-00	s	RES, METAL 39K 1% 1/6W
R24	1-215-441-00	s	RES, METAL 6.8K 1% 1/6W
R25	1-215-441-00	s	RES, METAL 6.8K 1% 1/6W
R26	1-215-459-00	s	RES, METAL 39K 1% 1/6W
R28	1-215-439-00	s	RES, METAL 5.6K 1% 1/6W
R29	1-215-449-00	s	RES, METAL 15K 1% 1/6W
R31	1-215-448-00	s	RES, METAL 13K 1% 1/6W
R32	1-215-461-00	s	RES, METAL 47K 1% 1/6W
R33	1-215-445-00	s	RES, METAL 10K 1% 1/6W
R35	1-215-469-00	s	RES, METAL 100K 1% 1/6W
R37	1-215-452-00	s	RES, METAL 20K 1% 1/6W
R38	1-215-445-00	s	RES, METAL 10K 1% 1/6W

NOTE : Please see pages D-2 and D-3 for the
part numbers of capacitors and resistors
that are not listed in the parts list.

(PR-91 BOARD, BKH-3010)

Ref.No. or Q'ty	Part No.	SP Description
R50	1-215-431-00	s RES, METAL 2.7K 1% 1/6W
R51	1-215-437-00	s RES, METAL 4.7K 1% 1/6W
R53	1-215-445-00	s RES, METAL 10K 1% 1/6W
R56	1-215-452-00	s RES, METAL 20K 1% 1/6W
R57	1-215-445-00	s RES, METAL 10K 1% 1/6W
R60	1-215-476-00	s RES, METAL 200K 1% 1/6W
R61	1-215-454-00	s RES, METAL 24K 1% 1/6W
R63	1-215-436-00	s RES, METAL 4.3K 1% 1/6W
R64	1-215-436-00	s RES, METAL 4.3K 1% 1/6W
R65	1-215-419-00	s RES, METAL 820 1% 1/6W
R66	1-215-401-11	s RES, METAL 150 1% 1/6W
R67	1-215-415-00	s RES, METAL 560 1% 1/6W
R68	1-215-415-00	s RES, METAL 560 1% 1/6W
R72	1-215-401-11	s RES, METAL 150 1% 1/6W
R74	1-215-430-00	s RES, METAL 2.4K 1% 1/6W
R75	1-215-402-00	s RES, METAL 160 1% 1/6W
R77	1-215-389-00	s RES, METAL 47 1% 1/6W
R81	1-215-407-00	s RES, METAL 270 1% 1/6W
R83	1-215-445-00	s RES, METAL 10K 1% 1/6W
R84	1-215-437-00	s RES, METAL 4.7K 1% 1/6W
R85	1-215-408-00	s RES, METAL 300 1% 1/6W
R90	1-215-438-00	s RES, METAL 5.1K 1% 1/6W
R91	1-215-417-00	s RES, METAL 680 1% 1/6W
R92	1-215-413-00	s RES, METAL 470 1% 1/6W
R99	1-215-401-11	s RES, METAL 150 1% 1/6W
R100	1-215-455-00	s RES, METAL 27K 1% 1/6W
R101	1-215-401-11	s RES, METAL 150 1% 1/6W
R102	1-215-455-00	s RES, METAL 27K 1% 1/6W
R103	1-215-410-00	s RES, METAL 360 1% 1/6W
R104	1-215-410-00	s RES, METAL 360 1% 1/6W
R105	1-215-410-00	s RES, METAL 360 1% 1/6W
R108	1-215-405-00	s RES, METAL 220 1% 1/6W
R109	1-215-437-00	s RES, METAL 4.7K 1% 1/6W
R112	1-215-389-00	s RES, METAL 47 1% 1/6W
R113	1-215-389-00	s RES, METAL 47 1% 1/6W
R114	1-215-390-00	s RES, METAL 51 1% 1/6W
R117	1-215-418-00	s RES, METAL 750 1% 1/6W
R118	1-215-445-00	s RES, METAL 10K 1% 1/6W
R119	1-215-421-00	s RES, METAL 1K 1% 1/6W
R120	1-215-444-00	s RES, METAL 9.1K 1% 1/6W
R121	1-215-422-00	s RES, METAL 1.1K 1% 1/6W
R123	1-215-410-00	s RES, METAL 360 1% 1/6W
R124	1-215-410-00	s RES, METAL 360 1% 1/6W
R128	1-215-416-00	s RES, METAL 620 1% 1/6W
R129	1-215-435-00	s RES, METAL 3.9K 1% 1/6W
R130	1-215-421-00	s RES, METAL 1K 1% 1/6W
R162	1-215-456-00	s RES, METAL 30K 1% 1/6W
R163	1-215-445-00	s RES, METAL 10K 1% 1/6W
R164	1-215-452-00	s RES, METAL 20K 1% 1/6W
R165	1-215-445-00	s RES, METAL 10K 1% 1/6W
R166	1-215-445-00	s RES, METAL 10K 1% 1/6W
RB1	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB2	1-231-410-00	s RESISTOR BLOCK 10Kx8
RB3	1-231-449-00	s RESISTOR BLOCK 620x8
RB4	1-231-533-00	s RESISTOR BLOCK 10Kx4

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Ref.No. or Q'ty	Part No.	SP Description
RV1	1-230-741-21	s RES, VAR, CARBON 10K
RV2	1-230-741-21	s RES, VAR, CARBON 10K
RV3	1-230-741-21	s RES, VAR, CARBON 10K
RV4	1-230-844-11	s RES, ADJ, METAL 20K
RV5	1-230-844-11	s RES, ADJ, METAL 20K
RV6	1-230-844-11	s RES, ADJ, METAL 20K
RV7	1-230-840-11	s RES, ADJ, METAL 1K
RV8	1-230-837-11	s RES, ADJ, METAL 100
RV9	1-230-843-11	s RES, ADJ, METAL 10K
RV10	1-230-842-11	s RES, ADJ, METAL 5K
RV11	1-230-837-11	s RES, ADJ, METAL 100
RV12	1-230-844-11	s RES, ADJ, METAL 20K
RV13	1-230-839-11	s RES, ADJ, METAL 500
RV15	1-230-742-11	s RES, VAR, CARBON 20K
RV17	1-230-844-11	s RES, ADJ, METAL 20K

NOTE : Please see pages D-2 and D-3 for the
part numbers of capacitors and resistors
that are not listed in the parts list.

